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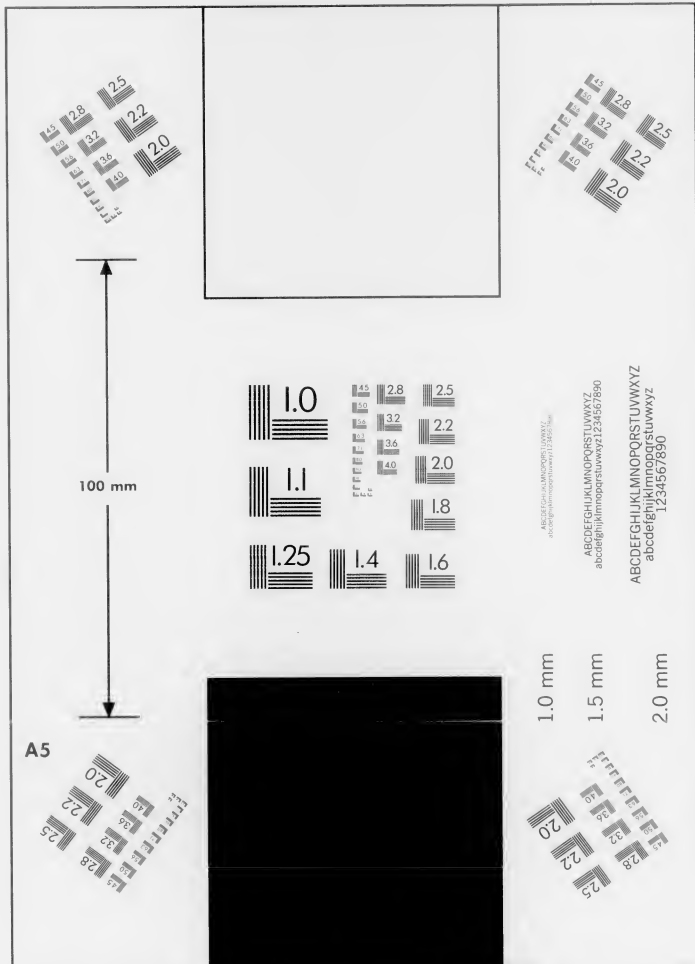
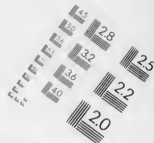
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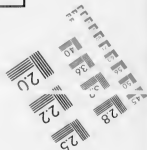
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**THE ECONOMICS OF
AMERICAN BUSINESS**

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THE ECONOMICS OF
AMERICAN BUSINESS

THE ECONOMICS OF AMERICAN BUSINESS

A Study of Economic Principles
in Modern Business Practice

BY

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and Commerce, University of Pennsylvania.*

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"Fundamentals of Economics," etc.*



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FUNDAMENTALS OF ECONOMICS

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TO MY FATHER

WILLIAM JAMES GEMMILL

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PREFACE

During the past ten or twelve years, business men throughout the world have shown an increasing disposition to concern themselves with economic principles. This growing interest in economics, which many regard as one of the economic consequences of the World War, is a somewhat belated recognition of the fact that a knowledge of economic laws may contribute to the making of sound judgments and the exercise of wise control in business activities.

Realization that a grasp of general economic theory gives one a better understanding of the forces affecting the individual business organization, is no longer confined to business men with academic training. Thus, there has developed a need for a volume dealing with economic principles, which will be academically sound and, at the same time, clear and understandable to one who is not in a position to undertake formal study.

The Economics of American Business aims to fill this need. It describes the principles and methods that are utilized today by American enterprisers, land-owners, wage-earners, and capitalists. These principles are abundantly illustrated by actual examples taken from contemporary business practice.

Under the title *Fundamentals of Economics*, this material has been used as a text with students in business courses at the Wharton School of Finance and Commerce, University of Pennsylvania. The author believes that the information, written as it is from the point of view of the business man, will be quite as useful to the general reader as to the student; and with this thought in mind is placing the book before a larger audience.

In the preparation of this book, I have had the good fortune to receive friendly counsel and valuable suggestions from my colleagues, Messrs. Ralph H. Blodgett, Raymond T. Bowman, E. Douglas Burdick, H. LaRue Frain, Leland J. Gordon, J. Weldon Hoot, C. Louis Knight, Maynard C. Krueger, William N. Loucks,

and Ralph A. Young. All of these associates of mine have been most generous in offering encouragement and constructive criticism. I may mention specifically that Messrs. Blodgett, Bowman, Knight, Loucks, and Young examined many of the chapters with painstaking care before they were set into type. For this assistance I must express sincere appreciation. But I owe a special debt of gratitude to Mr. Bowman, upon whose time this book has made, I fear, quite unjustifiable inroads. Fortunately for me, Mr. Bowman's keen interest in economic principles rendered him seemingly oblivious to encroachments of this kind.

My wife, Jane Brown Gemmill, assisted in the revision of the manuscript, and is responsible for important changes in the material. Mrs. Margaret Gilfillan and Mrs. Helen S. White typed the manuscript several times, and aided, also, in the burdensome task of proofreading. For all of this help, so cheerfully given, I am most grateful.

P. F. G.

Philadelphia, January, 1931.

PART ONE

PRODUCTION

CHAPTER I

HUMAN WANTS AND THEIR FULFILLMENT

IN THOSE sparsely populated parts of the world which are free from killing frosts and which, in consequence of a favorable climate, produce vegetation throughout the year, man is able to secure the necessities of life with but small expenditure of effort. The food that he requires is his for the taking, in large part, being provided free by nature; and so slight are his requirements in the way of clothing and shelter (again because of climatic conditions) that they can scarcely be said to constitute an economic problem.

THE MULTIPLICATION OF WANTS

Early "Economic Activity."—But we find, when we leave the tropics and view human existence in regions somewhat remote from the equator, that man is commonly under the necessity—sometimes a painful one—of stirring about and making a living for himself and those dependent upon him. For the seasonal changes of the temperate zone make it imperative that he take some thought of the future. Since the frosts of winter put a stop, at least temporarily, to the productivity of much of the plant life upon which man depends for sustenance, he must needs lay by in store certain grains, nuts, and other foods to supply his wants during the cold, barren months of the year. Or, if he neglects thus to provide against hunger, he is driven to the necessity of hunting or fishing in order to stave off starvation. In either case, he is less carefree than the native of the tropics. He finds himself in an environment in which his wants are not cared for gratuitously by nature. In a word, he is engaged in what is frequently referred to as "economic activity."

This activity is not confined to a search for food. Our *homo*

sapiens of the temperate climates discovers that, though the weather is agreeably warm during part of the year, there are times when it is painfully cold. Clothing and shelter, which are of no great moment in the tropics, constitute here a genuine need. The need is met by further economic activity, for, though it is bad enough to have to fashion skins into clothing for the sake of warmth, or build a hut to shut out the cold and snow, it is after all not so bad as freezing to death.

Migration and the Increase of Wants.—We shall not attempt to trace the development of human wants from a primitive stage of existence to the present day and age. We have aimed merely to show how wants may increase under the lash of necessity. If man had been content to remain in those "cradles of civilization" of which historians write, and had succeeded in restricting population to suitable numbers, he might have avoided many of the problems that have faced him in his struggle to make a living. For he could thus have escaped the hardships of those regions in which nature is less generous—in which she not only yields fewer units of product per unit of labor expended, but at the same time imposes harsh climatic conditions such as are unknown in the tropics.

The Expansibility of Human Wants.—However, it appears probable that, in any event, an increase in economic activity would have come as the years passed by, owing to the fact that human wants seem to be capable of indefinite expansion. Generation by generation, century by century, man has been insistent in his demand for more things, for new things, sometimes for better things. Passing abruptly from prehistoric to modern times, we may note in fairly recent developments in the United States some evidences of the expansibility of human wants.

We expect, of course, to find among human beings in general a desire for such fundamental goods as food, clothing, and shelter. But once these goods (which, in most cases, are essential to survival) have been secured, there arises forthwith a desire for other things; and so strong is this desire that the hope of gratifying it leads man to engage in irksome activities which have as their goal the fulfillment of wants. As for food, clothing, and shelter, man is no longer content merely to satisfy hunger and

protect himself against the elements. He now insists, for example, upon variety in food, and to obtain that variety he has shipped from the ends of the earth such items of food as are not grown in his neighborhood. Thus the average American consumes coffee from Brazil, tea from Ceylon, sugar from Cuba, and so on. The desired foods must be available in season and out of season. For a time it was possible to get along with dried and canned fruits and vegetables during the winter months. But wants have expanded, and past makeshifts do not suffice. Hence, we witness a tremendous demand for green goods throughout the year, with the result that lettuce, celery, string beans, tomatoes, and other fresh vegetables are imported from warmer areas, or produced nearer at hand under glass.

There is no need to speak at length of the increase in wants so far as clothing is concerned. Whether we are actually better dressed than our forefathers is an open question, both sides of which have many defenders. But there can be little doubt that, during the past few decades, the average person's interest in dress has increased; that is, his wants in the way of clothing have been expanding. He is, to borrow a phrase from the jargon of the advertising man, becoming "clothes conscious." The almost total abandonment of cotton hosiery in favor of silk and the growing popularity of fur coats are but indications of the trend of the times.

The expansibility of human wants is evident, moreover, in the development of more and more elaborate shelter. American homes of long ago may have been regarded as comfortable, but they lacked many of the conveniences that are now thought of as indispensable. Modern plumbing, electric lighting, and central heating are now taken as a matter of course, though they were almost unknown a half-century ago. Thus do luxuries speedily become necessities; for once an article possessed by a few has demonstrated its usefulness, the desire for that article spreads like wildfire, and steps are taken, through an increase in economic activity, to make it available for a larger number of persons.

Imitation and the Expansion of Wants.—In the automobile and radio we have excellent illustrations of the multiplication of human wants in a remarkably short period. In 1900, the automo-

bile was virtually unknown; today millions of business and pleasure cars crowd our streets—so many millions that they have created a genuine problem in the handling of traffic. In a single generation, the desire for swift, cheap, convenient transportation has found expression, and to a great extent has found fulfillment. The automobile, it should be noted, could not be used satisfactorily until a great deal of attention had been given to the improvement of highways. Hence, the gratification of one want gave rise to another. This new want, in turn, has been met fairly successfully through extensive programs of road-building.

The radio has come upon us with even more of a rush than the automobile. The explanation may lie in the fact that radio receiving sets are much less expensive than automobiles, and on that account the desire for a radio is more readily met once it is felt. In any event, it is safe to say that in the case of these two articles (and doubtless many others) imitation has played a large part in the expansion of wants. The desire to own an automobile may never come to a person until he discovers that a friend or neighbor has purchased one. Then the question arises: "If Jones has a car, should not I have one?" An affirmative answer begins to take shape when the joys of driving are described, or perhaps demonstrated, by Jones or some one else. But this step is not always needed, for the probable usefulness of the car may weigh less heavily than the prestige that may conceivably be won through its acquisition. In a good many instances, it would seem, the purchase of an automobile is not so much a matter of transportation as of demonstrating an ability to "keep up with the Joneses."

"Conspicuous Consumption."—To purchases of this kind the late Thorstein Veblen gave the expressive name, "conspicuous consumption." He sought to emphasize the fact that many of the most expensive commodities and services produced in a wealthy country such as the United States are bought by certain individuals chiefly for the purpose of impressing others, or "showing off," and not because they are expected to yield a great amount of genuine enjoyment in use.

It is conceivable, of course, that the New York "clubman and sportsman" who buys a \$3,000,000 yacht ("the finest private yacht in the world," according to the newspapers), the Philadel-

phia financier who employs two hundred servants in his city house, and the English society matron who owns \$3,400,000 worth of jewels, are spending in this fashion because of the utility, or usefulness, that their purchases bring. But there is reason to believe that many expenditures of these kinds would never be made were it not possible for the wealthy to dazzle their acquaintances, and the general public as well, by spending on a grand scale.

"Wants" and "Needs."—We see, then, that imitation and competition have an important place in the creation of wants. The familiar saying, "Our wants are many, our needs but few," appears to have some foundation in fact. Professor J. A. Hobson, in dealing with types of economic consumption, suggests that three factors—environmental, industrial, and conventional—are discernible in the building up of desires for commodities and services.¹ The *environmental factor* is largely a matter of climate, and influences, for example, one's interest in clothing and shelter in so far as those items are used as a protection against the weather. The *industrial factor* is responsible for differences in the consumptive needs of persons engaged in unlike occupations. The laborer, who engages in hard manual work, requires an abundance of substantial food, and his daily task indicates the use of coarse, durable clothes; the lawyer, on the other hand, needs less food and lighter food, and appearance rather than durability guides his purchases of clothing.

Professor Hobson apparently believes that, if the environmental and industrial factors alone affected consumption, we should find that needs and wants were virtually identical—that the goods that man wanted sufficiently to be willing to pay a price for them would be the goods that he needed to keep himself at the height of efficiency. But the *conventional factor* enters into the situation, and drives a wedge between needs and wants, for the conventional factor leads the less wealthy to imitate the more wealthy, in the effort to avoid any suspicion of "inferiority"; and it causes the several members of a given group to enter into competitive consumption (sometimes amounting to "conspicuous consumption") in order to prove "superiority." Consequently,

¹ J. A. Hobson, *Work and Wealth*, Chapter 10. New York: The Macmillan Co., 1922.

many things are bought that do not add to the efficiency of the purchaser.

If we keep in mind Professor Hobson's notion that one's needs consist of those things that contribute to genuine efficiency, it is not difficult to see that human wants, as expressed in one's purchases, are often far in excess of human needs. But in the present volume we are interested primarily in describing, and not criticizing, economic phenomena. We have drawn the distinction between needs and wants simply to make way for the final observation that so long as imitation and competition play a part in determining man's wants, so long will there be no limit to the expansibility of human wants.

THE LIMITATION OF GOODS

The multiplication of human wants would have no economic significance if the means of fulfillment were unlimited in quantity. This was approximately the case when man's wants were extremely simple, and when, living in the equatorial regions in small numbers, he was able to secure from nature, with little or no exertion, sufficient goods to gratify his desires. But as numbers increased and wants expanded, it became evident that, unhappily, there was available but a limited quantity of the goods required for the satisfaction of human wants. Man was thus compelled to lead an economic existence; that is, he found it necessary to economize in the use of certain scarce goods.

The Scarcity of Finished Goods.—Very few of the goods that are needed to satisfy human wants in modern times are provided ready-made by nature. Air and sunshine are among the extremely limited number of desirable things that man, as a rule, is permitted to enjoy without an expenditure of energy. In most cases, the production of useful commodities takes place only when man, using materials and forces provided by nature, makes them serve his ends by working upon them and changing their form. But thus far finished goods have not been able to keep pace with human wants. The volume of physical production has advanced steadily, but human wants have marched along at double-quick. So long as people are hungry, ragged, and homeless, there is no

denying that, from the group point of view, there is a scarcity of finished goods.

The Scarcity of the Factors of Production.—This scarcity is attributable, in turn, to a scarcity of the factors of production. In another chapter we shall speak of the four factors of production: land, labor, capital, and business enterprise. But it will be convenient, for the moment, to simplify our discussion by disregarding two of the four, and dealing with only the primary factors, land and labor. Since capital (as we shall see later) may be resolved into land and labor, and since business enterprise is merely labor of a special type, this temporary simplification of the productive process does not involve us in erroneous thinking. Land, it should be added, must be thought of as including all natural resources, such as soil fertility, mineral deposits, and natural vegetation; and labor, as human effort expended for the purpose of securing an income.

The Limited Supply of Land.—Now land and labor are essential to the production of finished goods, but these two factors, as we have said, are limited in quantity. Moreover, the supply of each factor is not of uniform excellence, but varies in quality from very good to very poor. Land, for example, upon which man depends for materials of all kinds, is limited in both area and fertility. Our farmers till the soil to provide society with food. But high-grade agricultural land is scarce, and, as more and more foodstuff is required, less fertile lands must be called into use; as a consequence, the yield in product, for each day's work, is smaller than before. The miners of coal, iron ore, and other minerals likewise experience a decline in productivity as the years roll by. Natural vegetation and animal life (such as forests, fish, and game), which often appear to be inexhaustible when a country is first settled, show signs of depletion after a century or two of exploitation.

It seems clear, then, that physical goods, unlike human wants, cannot be increased indefinitely; indeed, certain materials such as coal and iron cannot be increased at all, so far as the total stock is concerned. When, as in the case of agricultural products, the materials are not definitely limited in quantity, it is often found that an attempt to increase greatly the total amount of

product brings a smaller and yet smaller yield *per unit of productive effort*, and it is possible that an absolute limit may eventually be reached.

The Limited Supply of Labor.—The situation as regards labor is somewhat different. We do not have here an absolute fixity of supply as in the case of land area. However, *at any given time* there is available a certain quantity of labor, and no more. Labor is like land in that it consists of various types and grades. Some laborers do better work, or more work, than others, just as some acres yield a larger product, or better product, than other acres. Unfortunately, the quantity of extremely productive labor is small, and when recourse is had to labor of limited ability, it is frequently found that the additional product that is realized is scarcely enough to take care of the human wants of the extra workers who are responsible for the increase.

Over a period of time it is possible to increase the supply of labor by increasing the population. But, though the new workers (after a period of training) add to the total quantity of labor available for productive purposes, they add also, and greatly, to the sum total of human wants. It may fairly be questioned whether, in modern times, an attempt to overcome labor scarcity through a growth in population does not in reality increase, rather than lessen, the difficulties of the situation.

Some of the wants of man find satisfaction in personal services and not in material goods. The physician, the teacher, the actor, and others who produce no physical commodities are yet greatly in demand because of the desire for the services that they render. Here, again, the scarcity of labor is apparent, since many who crave medical attention, instruction, and entertainment, are forced to go unsatisfied because of the high cost of these services—a cost which is due to the scarcity of labor in these particular fields of economic activity.

THE ECONOMIC DRAMA

We now have before us the essential elements of the economic drama. There is, on the one hand, man as a consumer of commodities and services, seeking to gratify human wants that appear

to be capable of indefinite expansion. On the other hand is a shortage of the material goods and personal services without which man's wants cannot be satisfied. The scarcity of goods and services is chargeable to a scarcity of the factors necessary for their production. The material things which man requires can be had only if he cooperates with nature. This cooperation takes the form of economic activity, which is irksome, but is preferable to enduring a state of want and privation. And the production of services, likewise, involves economic activity.

Both land and labor, the primary factors of production, are scarce. Even if both are utilized to the utmost, it is still impossible for production to keep pace with the multiplication of human wants. Hence, man is under the necessity of economizing in the use of land and labor. If utilized for one purpose, these factors will not be available for other uses. Not being able to produce all that he should like to have in the way of economic goods, man chooses those things which seem likely to yield the greatest amount of satisfaction. But, discontented, he looks about for ways and means of obtaining more goods with the limited factors at his command. He turns from herding to agriculture, and the result is an increase in foodstuff. He invents a steam-engine or a cotton-gin, and thousands of workers are set free for other tasks. But there can be no let-up in his search for improvements, for new wants press hard upon him. The struggle is never-ending. The economic drama is a continuous performance.

In the following pages, we shall analyze this drama, examining the cast of characters, the scene in which the action is laid, the motives by which the actors are influenced, and the rewards that are theirs for having learned and played their parts. We shall view the action from several angles, and somewhat more in detail than in the present chapter; but we shall find that the plot is essentially the same, for it is the endless conflict between the multiplication of human wants and the limitation of goods that are capable of satisfying those wants.

CHAPTER II

SOME FUNDAMENTAL ECONOMIC CONCEPTS

THE study of economics cannot be pursued satisfactorily without a knowledge of the special or technical sense in which economists use certain words which are a part of our everyday conversation. In economics, as in other sciences, the thought which a writer aims to convey through the use of a word may be quite different from that which is connoted by the word in ordinary usage; and so it is important to agree upon the meanings of certain terms when employed in an economic sense. Some of these will be discussed in the present chapter, and others will be left for explanation as they occur in the course of specific discussions.

THE MEANING OF "ECONOMICS"

In our introductory chapter we attempted to give some notion of the circumstances that impel man to engage in economic activity. This brief account of man's economic struggle has supplied the material for the formulation of a definition of the term "economics," which may be expressed in a single sentence. Economics, then, is the science that describes man's efforts to satisfy his wants by utilizing the scarce means provided by nature. Except for the word "science," the definition presents nothing with which we are not already familiar; but this new term is one which must be understood if our approach to the study of economics is to be a sound one.

From the current definitions of science, we may choose that which describes a science as "systematized knowledge arrived at and shown to be correct by experiment and repeated observation." Thus we have a body of knowledge that we refer to as the science of chemistry, another called the science of astronomy, and so

SOME FUNDAMENTAL ECONOMIC CONCEPTS

on.¹ A science, by this definition, may include only those things which have been subjected to the strictest of tests, and have passed the tests satisfactorily. If one is a scientist, he lays aside personal prejudice and bias, in so far as this is humanly possible, and deals only with those things which he knows to be true. He aims to examine conditions as they exist, to see things as they really are. He accepts as final only those conclusions to which he is driven by the weight of evidence; that is, by the weight of the known facts.

It has been suggested that science is, after all, simply "accurate description"; and that the task of the economist is to describe, rather than to criticize, economic phenomena. However, should he find situations that appear to him to be undesirable, there can certainly be no sound objection to his saying so. And he need not be any less a scientist by reason of his finding flaws in certain of our economic practices.

WEALTH

The student of economics will soon discover that the subject deals largely with certain material goods called "wealth." Because of the importance of this term in economic discussion, we must pause sufficiently long to examine it with care. The word "wealth," used in an economic sense, includes those things which are useful, scarce, material, and transferable. A thing is *useful* (that is, it possesses "utility") when it has the ability to gratify human desires. It is *scarce* when the quantity is not adequate to provide freely for the wants of all who wish to use it. It is *material* when it is concrete in nature, as houses, automobiles, clothing, and food are concrete, in contrast to such non-material goods (or "services") as theatrical performances, legal advice, medical attention, and so on. It is *transferable* when the good itself or title to it can be passed from the possession of one person to that of another.

Economic Goods and Free Goods.—Another term frequently

¹ It should be mentioned that some persons prefer to think of science as a *method* rather than as *knowledge* itself. It seems best, for our present purposes, to regard the science of economics as a body of knowledge which, of course, has been arrived at through scientific procedure.

met with in economic discussion, which will aid us in gaining an understanding of the meaning of wealth, is "goods." A "good" is anything which has the power to gratify human desires; that is, anything which possesses *utility*, which is usually defined as "the power of a good to gratify human desires." But there are some goods, such as air, water and sunshine, over which man ordinarily has relatively little control, or which are available in relatively unlimited quantities. Goods of this kind are called "free goods." However, few of the goods in an economic society are free. That is to say, while all "goods" are useful, most "goods" are also scarce; and when the element of scarcity is added to that of utility the term "economic good" is applied.

Whether goods are free or economic is usually apparent when we know whether or not they command a price. Anything for which we must give something in exchange is of necessity an economic good. And so all articles which are bought and sold are economic goods. This includes, of course, nearly everything which is transferred from one person to another in our modern society. Very few things remain on the list of free goods, though we may say that, in general, air, water and sunshine are free.

However, in a densely populated region water ceases to be a free good and becomes an economic good, since a great deal of expense is involved in supplying the people of a large city with an adequate supply of pure drinking water. This expense must be borne by some one, or the water will cease to be provided, and consequently the users of the water are required to pay for the quantity of this good (an *economic good*, it will be noted) which they require. A similar statement may be made in regard to air. Though air is ordinarily thought of as a free good, yet it is frequently necessary in great office buildings to provide expensive ventilating systems to insure a supply of fresh air; and the cost of this service must be borne by the tenants in the form of higher rents.

The word "economic" in the term "economic goods" is the key to the situation. If we have to economize in the use of a certain good, then it is obviously an economic good. If, in addition to being an economic good, it is material and transferable, it falls also into the classification of wealth. If the good is so plentiful

that an unlimited supply of it is obtainable without payment, then clearly it is a free good.

The Concrete Nature of Wealth.—If we could take an instantaneous photograph of all of the concrete economic goods in the United States at a given moment, we should have a picture of the wealth of the country. This picture would include all of the farming land with its fertility; all of the mineral resources, such as iron ore, coal, and petroleum; all of the factories, together with the land which they occupy and the machines that they house; all of the stores, with their stocks of goods; all of the great transportation lines; and all of the homes and personal belongings of the people of the country. These and all other useful and scarce concrete goods would have to be in the picture.

There are some who hold that wealth consists of non-material as well as material goods, and that there should be added to the concrete goods which we have described all of the abilities, innate and developed, which are to be found in the people of the nation. These abilities, of course, are of great variety. The physical ability of the unskilled laborer, the acquired ability of the trained artisan, the intellectual ability of professional men, the home-making ability of the millions of housewives, and the artistic ability of creative and interpretative artists are of unquestioned importance in the economic life of the country. For certain purposes, it is helpful to regard such non-material economic goods as wealth. But, on the other hand, the inclusion of non-material goods in the concept of wealth leads to complications, and sometimes to confusion on the part of the student. It seems best, then, to limit our concept of wealth to material goods.²

A Test for Wealth.—From what has been said, it should be clear that we may determine, in the case of any article, whether it is wealth or not simply by answering these four questions:

1. Does it have utility; that is, is it useful?
2. Does it possess scarcity; which means, is there an insufficient quantity of it, so that it is an economic good and not a free good?
3. Is it material, or concrete, in nature?
4. Can title to it be transferred from one person to another?

² But, though we exclude non-material goods from our concept of wealth, we shall not omit them from consideration. Indeed, they will form a part of our study of "income" in the present chapter.

If this test be applied to the concrete articles about us, we shall find wealth on every hand, whether it belongs to us personally or to some one else. The student usually has no difficulty in seeing that useful, scarce, material, transferable things are wealth. It is somewhat harder to understand that non-material goods do not also constitute wealth. A violin, for example, is clearly wealth, but since it is useless until it is played upon by a skilled musician, it may seem strange to suggest that the skill of a Fritz Kreisler or Mischa Elman is not wealth also. And yet, as we have seen, our definition includes the violin but excludes the skill of the violinist. Likewise, we count as wealth the bronchoscope developed by Dr. Chevalier Jackson for the removal of foreign substances from the lungs and other parts of the human anatomy, but arbitrarily rule out the skill of the operator who uses this piece of concrete goods in the performance of a desirable end.

The skill of the musician or physician is excluded from the category of wealth on two counts, for it is neither material nor transferable. But both musician and physician, in the exercise of their skill, create economic goods (frequently called "services") which are certainly transferable, for the music of the violinist passes to the listener, and the healing art of the physician to his patient. Perhaps the best evidence that a transfer actually takes place is the willingness of the recipients to make payment for these economic goods. Items of this kind, then, are useful, scarce, and transferable, but they cannot be classified as wealth because they lack the quality of materiality.

It is probable that most persons, in their everyday thinking, use the word "wealth" only in connection with material things. In any event, the student will experience no difficulty with the concept of wealth if he pays strict attention to the definition, and to the four test questions that have been suggested. It may be helpful to bear in mind the fact that, in economic parlance, anything that is useful is a *good*; any good that is scarce is an *economic good*; and any economic good that is material and transferable is *wealth*.

Is Money "Wealth"?—A common conception of wealth is that it consists of money, and yet, strangely enough, this is an article which it is best not to regard as wealth in most of our

economic discussion. Money, as we shall see in some detail later in our study, is not useful, in the main, except as it facilitates the exchange of economic goods for other kinds of economic goods. It is, therefore, really just a means of making it possible to trade goods more easily than could otherwise be done in our complicated economic relations. Money is almost never desired on its own account; and, therefore, though it is scarce, material, and transferable, it may be said to possess almost no utility except that which it has by virtue of its power to facilitate exchange.

Money is of several kinds, the chief divisions being metallic and paper money. The remarks that have been made thus far apply particularly to paper money. Metallic money, of course, may be desired for the metal itself. That is, a five dollar gold-piece melted into bullion would be distinctly useful, since there are many uses for gold apart from its aid in exchange. To the extent to which money is wanted because of its desirability as bullion, it must be considered wealth. But this means that a silver dollar is not a dollar's worth of wealth, since there is not in it a dollar's worth of silver bullion. In like manner, the bank note on which are printed the words "five dollars" cannot be accounted five dollars' worth of wealth. It is, rather, a claim upon that amount of wealth.

It is best, then, in economic discussion, to regard money not as wealth but as a *claim upon wealth*, which means that, with a certain amount of money in our possession, we are in a position to demand and secure the things which we really want, and these things ordinarily are concrete goods and personal services.

Further "Claims Upon Wealth."—Other items which may be listed as claims upon wealth are such things as stocks and bonds, patent rights, copyrights and "good will." Stocks and bonds are simply certificates of ownership in certain business organizations, through which the holders are enabled to claim a share in the earnings of these organizations.³ Stocks and bonds usually represent physical equipment in a business establishment of some kind. When a share of stock or a bond is purchased, the buyer gives up

³Bonds, strictly speaking, do not represent ownership, but are contingent claims which become effective only in the event that the debtor fails to meet certain contractual obligations. The distinction between stocks and bonds will be taken up in detail in a later chapter.

a certain number of dollars with which the seller of the stock or bond is able to buy physical equipment to aid in the operation of his business. This physical equipment, and not the stocks or bonds, is the real wealth.

Patent rights, copyrights and good will are intangibles through which the holder expects to secure certain privileges not enjoyed by most persons. A copyright or a patent grants to the holder a monopoly which may bring a large return not enjoyed by others. For example, the patent right on the Gillette safety razor makes it possible for the manufacturer to make these articles without fear of competition; and in like manner a copyright protects an author in his literary production, or a business man in the exclusive use of a trade name, such as "Ivory Soap." Good will is a sort of prestige which is built up by fair dealing over a period of years, and which, once established, is likely to result in a continuance of trade. Thus some persons have been dealing at the Wanamaker stores for years, and, having been satisfied, continue as a matter of course to make their purchases there. Were the Wanamaker management to sell out to another concern, this good will which has been built up could, in part at least, be transferred to the new management and would insure the patronage of some of the former Wanamaker customers.

It may be added that some economists classify as *individual wealth*, but not *social wealth*, such items as we have referred to in the past three paragraphs. A share of Pennsylvania Railroad stock, for example, is said to be wealth to the individual, but not to society. If the right represented by the share of stock were to be destroyed, society would not suffer, but the owner of the share would lose his claim upon that quantity of wealth to which his holding of stock now entitles him. This classification is a useful one for some purposes, and serves still further to emphasize the fact that the real wealth consists not of the claims themselves but of the goods which they enable the holders of these claims to obtain.

INCOME

Wealth is a *stock* of material, transferable, economic goods, thought of as existing at a given moment of time. Income is very

closely related to wealth, inasmuch as it may be described as a *flow* of economic goods, over a period of time. In the diagram (Figure 1) we have a graphic representation of wealth and income. The large reservoir labeled "wealth" represents all of those material, transferable, economic goods which were described in an earlier paragraph. The material goods in this country are said to be worth approximately \$360,000,000,000. This is, for the people of the United States, the stock of wealth to which we have

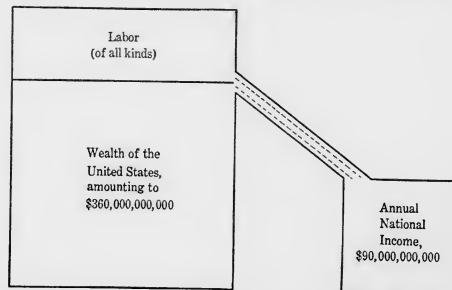


FIG. 1: WEALTH AND INCOME: Wealth consists of material, transferable, economic goods of all kinds. Income consists of new wealth, the services of old wealth, and personal services, and may be thought of as *flowing out* of wealth. Except for the services of old wealth (held over from a previous period), income is made up of economic goods, material and non-material, produced by labor in combination with wealth. One fact noted in the text—the addition to our stock of *wealth* of about 15 per cent of the annual *income*—is not shown in the diagram.

already referred. Labor, though not a part of wealth, is included in the diagram, since it is not wealth alone, but the combination of wealth and labor, that produces economic goods of which income is composed. In some instances, as, for example, in the manufacture of machine-made goods, the combination consists of much wealth and little labor; but sometimes, as in the case of the non-material goods produced by the lawyer or physician, much labor and little wealth are used.

The Flow of Income.—A nation's stock of wealth, then, is

being worked upon continually by labor of many kinds. Flowing from this stock, over a period of time, say during the course of a year, are large quantities of material and non-material goods which minister, directly and indirectly, to our comfort and enjoyment, and which the economist calls income. These goods are pictured in the diagram as proceeding from the large reservoir into a smaller receptacle; and if we assume that the smaller vessel is filled with \$90,000,000,000 worth of income annually (that is, material and non-material goods to this amount in the course of a year), we have some notion of the relationship between wealth and income in the United States.

An investigation of actual conditions will convince us that we have here a true representation of the state of affairs existing in society. That is to say, the concrete wealth of a country (consisting of natural resources, machinery, commodities in the process of manufacture, and some articles ready for consumption) is used by the people of the country, and through their several abilities is transformed into necessities, comforts and luxuries which contribute to the enjoyment of life. To these finished concrete goods are added non-material goods, or personal services (such as those of the doctor, lawyer, barber and entertainer), and the services of old wealth; and all of these flow day by day, and year by year, from the larger to the smaller reservoir.

Non-Consumed Income.—It would not be correct, however, to suggest that the whole of the \$90,000,000,000 worth of income is consumed during the year. What actually happens is that something like 85 per cent of this income is used up annually, and about 15 per cent is added to the contents of the large reservoir, where it takes the form of machines and other productive instruments, instead of remaining in the smaller container in the form of goods to be consumed immediately. Thus every year witnesses an increase in the quantity of wealth in the United States; and we find that perhaps some \$15,000,000,000 worth of material wealth is added to the contents of this large tank during the course of a year. We shall later investigate, in some detail, the way in which the material wealth of the country is built up through savings from income.

Money Income, Real Income, Psychic Income.—The term "income" requires a little further analysis. Economists commonly speak of three kinds of income. These are money income, real income, and psychic income. *Money income* is readily understood. In this country it consists of the dollars that a person receives over a period of time. *Real income* is not money, but is the commodities and services which one is able to buy with his money income. The distinction between money income and real income is quite important, since there is much confusion in the mind of the average person on this subject. A large money income does not necessarily mean the ability to buy much economic goods, for if prices are high a money income, even though it be large, will purchase relatively few of these desirable items. If, then, we are speaking of a person's income, and wish to refer to the standard of living he is able to maintain with that income, what we have in mind is real income, and not money income. This is but another illustration of the fact that money in itself is of little use, and attains significance only as it procures for us those things which we need or want.

The third type of income, *psychic income*, has relatively slight importance for the student of economics. It is not susceptible of scientific treatment. Psychic income means the actual enjoyment or gratification which comes to a person through the consumption of commodities and services. The pleasing taste of food on the palate and the sense of elevation which comes through hearing fine music are examples of psychic income. Inasmuch as the amount of enjoyment contributed by economic goods differs with the make-up and temperament of the individual consumers, there is no way of measuring psychic income; and it is mentioned only to make clear the fact that the gratification afforded by commodities and services (that is, the utility which they provide) is after all the goal of all productive processes.

Individual Gross and Net Income.—One further classification of income may be made. When a business man mentions his total receipts for a given period, say a year, he is referring to *gross income*. But when he deducts from this amount all of the expenses incurred in connection with the conduct of his business, what is left constitutes *net income*. For many purposes this

deduction is essential. If, for example, a small shopkeeper wishes to ascertain how well he is being paid for the conduct of his business, he must subtract from his gross income not only all money that he has expended, but also the interest on any amount of his own wealth which he has invested in his business; only then will he learn how great a net income he is reaping for the operation of his particular occupation.

AN ANALYSIS OF MATERIAL WEALTH

In attempting to define wealth, we stated that it consists of a stock of material, transferable, economic goods. We may now examine in somewhat greater detail the nature of wealth. Wealth, then, falls into three classifications: land, capital, and consumers' goods.

Land: The Basis of Economic Activity.—*Land* may be defined as all natural resources produced without the assistance of man's labor. This includes not only a part of the earth's surface, but rivers and streams of various kinds; mineral deposits, such as coal, iron, and oil; agricultural attributes, such as fertility; climatic conditions, including rainfall, sunshine, and temperature; natural vegetation, such as forests and fruits; and wild animal life, such as fish and game. Land is the very basis of man's livelihood. It is the starting point of all economic life. It is, therefore, of the utmost importance that we get a clear notion of what the term means in its economic usage.

The Desire for Consumers' Goods.—Man, coming upon the scene, takes these natural resources and converts them to his own uses. Some of the goods which nature has bestowed upon him are ready for consumption. There is, for example, the fruit which may be picked from the tree and consumed immediately. But most of nature's bounties are in a crude state until they have been manipulated by man. Man's desire, of course, is to transform these natural resources into consumers' goods; for *consumers' goods* are those articles which are in the finished state, ready for use and capable of gratifying human desires without passing through any further productive processes. A tree in the virgin forest is, from the point of view of the economist, land. When that tree

has been felled, fashioned into a chair, and delivered to one who needs it, it is no longer land but consumers' goods. Likewise, a fish in the sea is land, but cooked and served to a hungry man, it is a consumer's good. We might, in like manner, name thousands of articles in daily use which had their origin in land and which, through a process of production, have been converted into usable goods.

Consumers' goods, it should be noted, are sometimes divided into durable and non-durable goods. *Durable goods* consist of houses, pianos, books, and other items which may be used over a relatively long period of time. *Non-durable goods*, on the other hand, are such things as food, coal, gasoline, and the host of articles which are consumed in a comparatively short time, sometimes with a single use.

The Use of "Capital" in Production.—In some cases the process of production is a long and elaborate one and involves the use of what is commonly termed "capital." *Capital* is produced goods intended for further production. Man has discovered that goods can be produced more economically if, instead of trying to make the consumers' goods directly from the natural resource, or land, he makes an intermediate good which economists call capital. In the making of a chair we require certain tools—an axe, a saw, and a hammer. Since these three items do not directly gratify human desires, they are not consumers' goods but capital; that is, they are produced goods intended for further production.

These are extremely simple examples of capital. Our picture of material wealth would include many pieces of extremely elaborate machinery which come under this classification of capital. The steam shovel used in excavating, the truck used in transporting goods, the countless machines in metal-working establishments, the printing press in the newspaper plant, the typewriter in the business office—these are but a few of the thousands of kinds of capital which are in existence. All, it will be noted, are goods made by man with the aid of natural resources; and all are made not for the sake of direct gratification of wants, but with the idea of aiding in further production. On this account they are sometimes called "producers' goods"; and

we shall use the terms "capital" and "producers' goods" interchangeably.

Fixed and Circulating Capital.—Classifications in the field of economics are numerous. Capital may be classified in several ways with some advantage. It may be divided first of all on the basis of its *durability*, in which case it is called either *fixed capital* or *circulating capital*. Fixed capital is that which lasts for a long time, which is not consumed in a single process or even a few processes; whereas circulating capital consists of those types of capital which are used up promptly as they take part in the productive process.

A steamship, for example, is fixed capital, and so is a locomotive or a printing press or a typewriter. In all of these cases, the capital may be worked steadily for a number of years before it is rendered useless. But the coal which is consumed in the furnaces of a manufacturing plant, the paper which passes through a printing press and becomes a newspaper, and the electrical power which is the force operating much of our industrial machinery, are all but slightly durable; and such items, which are consumed in a single process or in several processes, are commonly called circulating capital.

Free and Specialized Capital.—Another classification is sometimes made on the basis of the *number of uses* to which capital may be put. If capital has a great many possible uses, it is called *free capital*; but if it is an article the use of which is relatively limited, it is called *specialized capital*. One of the best examples of free capital is coal. It can be used in any one of a thousand industries, and therefore is said to move freely throughout our industrial world. But a shoe-manufacturing machine or a metal-cutting machine is designed for a particular operation. It comes under the heading, therefore, of specialized capital. Coal is equally useful in providing power for shoe manufacturing or metal working, but the shoemaking machine is useless in the metal-working plant, and a steel-cutting device would similarly be worthless in the shoe factory.

As an evidence that this classification sometimes has significance, we may mention the large amount of specialized capital

used in the brewing business prior to the adoption of the prohibition amendment. By the enactment of this legislation, much of this capital lost its value, simply because it had been adapted for a single use. Some brewers, it is true, became manufacturers of soft drinks, and others turned their breweries into cold storage plants, but there can be no question that many suffered considerable loss because they had invested in specialized capital instead of free capital.

It may be helpful to have before us, in outline form, some of the terms that have been discussed in the present chapter. It will be recalled that man's purpose in engaging in economic activity is to secure those goods which (in addition to free goods) are needed for the satisfaction of his wants. Figure 2 is an outline

Goods:

- I. Free Goods.
- II. Economic Goods:
 - A. Services.
 - B. Wealth:
 1. Land.
 2. Capital:
 - a. Fixed and circulating.
 - b. Free and specialized.
 3. Consumers' Goods:
 - a. Durable.
 - b. Non-durable.

Fig. 2: AN OUTLINE OF "GOODS."

of "goods" of all kinds. If the student will memorize this outline, and make sure that he understands the terms that are included in it, he will find these concepts and the knowledge of their relationships extremely useful in his study of economic principles.

A *science* is a body of systematized knowledge arrived at and shown to be correct by experiment and repeated observation.

Economics is the science that describes man's efforts to satisfy his wants by utilizing the scarce means provided by nature.

Wealth is a stock of useful, scarce, material, transferable goods.

A *good* is anything which has the power to gratify human desires.

Free goods are goods which are available in relatively unlimited quantities.

Economic goods are goods which are scarce.

Income is a flow of economic goods over a period of time.

Land consists of natural resources produced without the assistance of labor.

Capital is produced goods intended for further production.

Consumers' goods are goods in the finished state, in the possession of the persons by whom they will be used.

CHAPTER III

PREMISES OF THE PRESENT ECONOMIC ORDER

AN EXAMINATION of the economic life of any highly industrialized country reveals the existence of certain principles which have come to be regarded by some persons as fundamental to the operation of the economic system. In some cases these principles indicate the incentives which induce men to engage in arduous tasks; and, again, they provide certain rules according to which the industrial game is played. Closely related to principles of this sort, and in some instances owing their very existence to these principles, are economic institutions such as private property and free enterprise, which have developed over a long period of years and now appear to be firmly established in the social order.

SELF-INTEREST

The Meaning of Self-Interest.—The principle of self-interest is one which occupies a prominent place in every society. Self-interest means a higher regard for one's own welfare than for the welfare of others. It means, in short, "every man for himself and the devil take the hindmost." The Biblical injunction to do things "in honor preferring one another" is not very generally heeded in actual practice. In war, in politics, in religion, in law, in "society," in teaching—indeed, in almost every field of human activity—are evidences of the desire to "get ahead" even at the expense of others. The self-denying person is the exception rather than the rule.

Self-Interest in Economic Life.—In the field of economics self-interest manifests itself in the exercise of the acquisitive instinct, which is the "urge" to get for one's self those economic goods which are likely to contribute to one's enjoyment, even though in doing so one deprives another of goods which that person is

anxious to secure. Since economic life concerns itself wholly with things that are scarce (that is, with commodities and services that are desired by many but are not sufficiently plentiful to constitute free goods), it is not surprising that the influence of self-interest should be evident on every hand and in practically every business transaction.

The principle is in thoroughly good standing in the business world, provided only that in practicing self-interest one acts in conformity with certain established rules and regulations. The acquisition of wealth by means of theft or robbery is outlawed; but it cannot be denied that some business men have become rich through charging extortionate prices for scarce, necessary goods, and have even themselves (through monopoly control) brought about the scarcity by artificial means. Workmen, likewise, have not hesitated to charge just as much for their services as they are able to force from the buyers of the services.

Modification of Self-Interest.—Of course, there are certain family relationships into which self-interest does not enter, or in which its practice is at least greatly softened. A parent may prefer wealth and fame for a child rather than for himself or herself. A child may deny himself something that he greatly desires in order to contribute to the support of a needy father or mother. But these evidences of self-sacrifice do not ordinarily extend beyond a limited circle.

Indeed, a man's desire to look after the needs of those near to him may be the very incentive for the adoption of grasping methods when dealing with those outside his immediate family group. It is not uncommon for a man to compete with great intensity with those working in the same field, not because he desires wealth for himself but for the reason that he wants to have his wife and children amply provided for. And whether the goal is immediate personal self-interest, or a limited self-interest that denies one's own self in matters affecting near relatives, the effect upon economic society is largely the same. That is, there is a tendency on the part of all engaged in economic activity to struggle or compete one with another, in the effort to draw, each in his own direction, as large a part of the national income as is possible.

Self-Interest and Economic Progress.—This principle of self-interest has played an important part in economic progress. It has been discovered that one may achieve importance not only through deeds of valor or the creation of works of art, but by the accumulation of great quantities of wealth. Thus, in addition to desiring material goods and services for the sake of the gratification which they provide, men have long sought to amass wealth so that it might win for them the admiration of their fellow-men. In their anxiety to acquire the riches that bring prestige (as well as for other reasons), business men labor long and diligently, launch forth into new fields of economic activity, search for improved methods that will make established businesses more productive, and in other ways contribute to economic advance.

It appears, then, that there is implanted in nearly every one a desire to possess economic goods, and this human trait is so nearly universal and so firmly entrenched that it leads to a continuous struggle for the possession of wealth. This struggle we frequently call "economic competition."

PRIVATE PROPERTY

But the mere acquisition of economic goods does not satisfy fully the demands of self-interest. Most persons wish not only to gain, but to hold fast to economic goods, or at least to retain complete control over them until such time as these goods may be used up or disposed of in other ways.

Private Property and Its Limitations.—Consequently, there has grown up, over a long period of years, the institution of private property, which guarantees to an individual the right to use and control such goods as he may acquire, without interference from others, and even to dictate how his possessions shall be distributed after his death. There are, to be sure, some restrictions upon the uses to which one's property may be put; but these restrictions, as a rule, are not particularly burdensome.

Usually there are prohibitions against the use of one's goods in ways that would be likely to interfere with the rights of other persons. If, for example, a man should choose to destroy his own

house by setting fire to it, this privilege would be denied him by the state if his action were likely to endanger the lives or property of others. Moreover, it is customary for the state (or other political unit) to exact from a property owner, in the form of a tax, some part of his property (or income from that property) in order to meet the expenses of government.

The Protection of Property Rights.—However, in an industrialized and relatively democratic country, such as the United States, there is almost always a strong tendency to safeguard carefully the rights of property. Not only is the owner of property authorized to protect his possessions himself, but society as a whole, through its police power, undertakes to guarantee that he shall not be deprived of his goods by force. And the government itself is forbidden to appropriate private property, except by “due process of law.”

The institution of private property protects those who *have* against possible encroachments on the part of those who *have not*. Were it not for this protection, self-interest, in the field of economic endeavor, would probably express itself in a struggle for those things which afford *immediate enjoyment* in consumption, for there would be little or no point to devoting time and effort to the acquisition of goods which might be wrested from one by a stronger individual or by a greedy government.

Usefulness of the Institution of Private Property.—Indeed, economic progress was hampered for a long time because of fear lest a man should not be permitted to reap where he had sown. Agriculture, the earliest of definitely located industries, did not come into its own until there was reasonable assurance that crops, when they had matured, would not be appropriated by others through force of arms. Manufacturing and commerce, likewise, have lagged behind in times and countries which have failed to provide, by means of a strong, well-established government, a guaranty that the rights of property would be respected.

The institution of private property, in making this guaranty, encourages the accumulation of surplus goods, and thus aids in the development of an industrial order, for through goods being saved instead of consumed, a stock of capital is built up. This capital takes the form of buildings, machines, tools, and other aids

to production; and, as we shall see in the next chapter, the effectiveness of production is in large measure dependent upon the existence of instrumental “capital” of these kinds. Since capital is essential to efficient production, but will be accumulated only if the owner is protected in his use and control of it, the institution of private property, by providing the necessary security, makes an important contribution to social welfare.

FREE ENTERPRISE

Private property is useful in supplying an incentive to economic activity; and freedom of enterprise must be credited with keeping open the road to economic opportunity. For the institution of free enterprise makes it possible for a person to engage in any business that he may choose, without interference from the state. Self-interest, then, impels a man to look about until he finds a line of work which strikes him as profitable; the institution of free enterprise permits him to enter the field of activity that he has selected; and the institution of private property insures that he shall be allowed to enjoy the fruits of his ability and industry.

The Beginnings of Free Enterprise.—Prior to the Industrial Revolution, which ushered in the factory system and the use of mechanical power in industry, a man had but little choice in the matter of his occupation. Under the manorial system, the vast majority of workers were farm laborers, who were, in a very real sense, tied to the soil. Being born on a particular manor, they were obligated in various ways to the lord of the manor, and were not free to sever this relationship at will. Their obligations were well established by custom, and ordinarily a son would fall heir to the status—frequently a very humble status—of his father.

Even had the workers been free to come and go at their own pleasure, there were, in those early days of industry, but few distinct trades or businesses which a man might enter; and those few were guarded jealously by the guilds of craftsmen and merchants who were then, as now, anxious to avoid undue competition. The introduction of the factory system of manufacture weakened the ties that had bound the peasant to the land, and the demand for factory operatives opened up new occupational

possibilities that have been broadening ever since. Thus the control of the individual's economic activity by custom or law gave way to *laissez faire*, or freedom of enterprise.

Government Restrictions upon *Laissez Faire*.—The transformation was not a sudden one, but has stretched out over the years. Even in the early days of the nineteenth century the rights of labor had but scant recognition. There is a recorded case, for instance, of employees who were ordered by the courts to work for their employers at a specified wage, and were penalized for failure to comply with this order. Here, obviously, was a violation of free enterprise.

Today, happily, the law does not presume to interfere in such matters, though even now there are certain requirements that must be met before a person is permitted to enter some professions, notably law and medicine. Plumbers, electricians, and other skilled artisans are likewise required, in some states, to pass examinations in order to secure licenses permitting them to ply their trades. Ostensibly, these measures are adopted to protect the public in the purchase of important services which, in the absence of regulations, might be performed badly by poorly trained practitioners. But these are the very grounds on which the medieval guilds sought to justify their restrictive measures.

It should be said, in justice to those who champion present-day restrictions upon free enterprise, that exclusions are usually made on the basis of the failure of candidates to measure up to certain established requirements. This means that, while it is unsafe to admit into some fields of economic activity any person who cannot pass the necessary tests, the door is open to all who possess the requisite ability. This is quite a different matter from forbidding the rank and file to leave the economic station in life to which they have been assigned through accident of birth. Under the medieval system the peasant boy was destined to remain a peasant. In a régime of free enterprise, despite the restrictions that have developed, he might reach a position of eminence in the business world or in one of the learned professions.

If we were to call the roll of men of prominence in this country today we should doubtless find that a large percentage, and possibly a clear majority, had risen from the ranks to their

present places of wealth and power. This is particularly true in the business world, for our Carnegies, Rockefellers, Schwabs, Wanamakers, Fords, and other industrial leaders have, probably more often than not, emerged from almost total obscurity, and, under the institution of free enterprise, have pushed forward to positions of economic greatness. Such careers would be out of the question in a country which denied its citizens the privilege of choosing freely their avenues of economic activity.

It should be added that careers such as these become increasingly difficult of achievement as a country grows old industrially. For industrial maturity is usually accompanied by the appropriation of natural resources by private individuals, and the use of large quantities of instrumental capital in business enterprise. Consequently, the young man who starts out today empty-handed may find in his way greater obstacles to be surmounted than those which confronted his father or grandfather, even though they, too, began their business careers without material resources.

Natural Limitations to Free Enterprise.—It is scarcely necessary to deal at length with governmental obstacles to free enterprise, such as are created through the granting of franchises, patents and copyrights. These, indeed, may quite properly be regarded as incentives to economic progress rather than hindrances. For a franchise is awarded presumably to the individual or concern which seems most likely to render the best service at the lowest price; and patents and copyrights are, in effect, prizes offered by society to those who invent useful appliances or originate clever ideas. Here, again, the road to opportunity is open to all who can qualify, and not to a selected few.

The question of natural ability is one of great significance, of course, and the lack of special talent essential to success in a particular occupation is nowadays more likely, than is government interference, to be the obstacle to freedom of enterprise. Unfortunately for the handicapped and possibly for society as a whole, deficiencies in natural ability are difficult and oftentimes impossible to overcome. However, the institution of free enterprise does not pretend to assure success in an economic undertaking. All it does is to say, in effect: "The field is open to you and to all who care to enter the contest. Your success or failure will depend

upon your ability to compete with others who, like you, are seeking their economic self-interest."

Free Enterprise and Equality of Opportunity.—Our much-discussed "equality of opportunity," therefore, means merely that whoever will may enter the lists, but each must supply his own equipment. This equipment, in the economic struggle, consists not only of natural endowments, such as physical stamina, mental agility, sound judgment, and so on, but capital, or instruments of production, as well. (We are referring, for the moment, to those who aspire to play the enterpriser's rôle.) Of course, if one possesses the essential personal qualities to an unusual degree, he *may* be able to borrow the funds needed to put him on a par with those whose capital is supplied through family connections. But then, again, he may not.

It is apparent, therefore, that genuine equality of economic opportunity does not exist. It is impossible so long as the instrumental factor of production, capital, is unevenly divided among the contestants. And even were this artificial barrier removed, there would still remain the natural barrier of differences in personal abilities to prevent the competitors from starting out on a basis of equality. Whether equality of economic opportunity is desirable need not occupy our attention at this time. The point to be made is that free enterprise, which many appear to regard as synonymous with equality of opportunity, in reality does nothing more than open the contest to "all comers," some well equipped and others but feebly endowed for the struggle.

THE "ECONOMIC MAN"

We come now to the concept of the "economic man," which has been the subject of much debate among students of economics.

The Nature of the Concept.—The economic man is an individual (regarded by some economists as purely mythical) who is supposed, in all his actions, to be seeking his economic self-interest. His course of conduct may be described briefly as selling at the highest obtainable prices and buying at the lowest possible prices. In making his purchases, he aims always to secure the maximum of utility; that is, he tries never to spend a dollar for

any commodity or service, if the expenditure of this amount for something else would result in greater utility.

He does his best, moreover, to avoid "disutility." If, for example, our economic man is a workman to whom either of two jobs is open, he will be expected without question to choose the one which, for each dollar of income, entails the least work, since work is irksome and brings disutility.

Objections to the Concept.—Many pages of print have been used to prove that the economic man does not exist. The objectors, in most cases, have seemed to have in mind an economic man who not only sought, but actually attained, the maximum of utility and minimum of disutility in all of his dealings. Thus defined, the economic man is certainly imaginary, for there are so many obstacles in the way of the attainment of this ideal that one may fairly safely say that it is unattainable by mortal man. To make the choices necessary to complete success would require infallibility of judgment.

Whether it is better to pay the "neighborhood" druggist a quarter for a tube of shaving cream, or walk a dozen blocks and get it for 17 cents at a cut-rate store, is perhaps a small matter; but thousands of such questions would have to be answered by our economic man in the course of a year, and every question would involve the knowledge of many facts, and a fine balancing of one against the other, before a decision could be reached. It is unbelievable that in these thousands of judgments the maximum of utility and minimum of disutility would always be realized. How (to indicate but one difficulty) could the economic man gain full knowledge of all necessary details without consulting the advertisements? But how, unless he possessed the wisdom of Solomon, could he read the advertisements, and then attain the maximum of self-interest in the purchase of (say) an automobile, a radio set, or a package of cigarettes?

The Modified Economic Man.—The economic man whom we described at the outset must not be expected to be infallible in his judgments. He was pictured merely as *seeking* always his own economic self-interest. And yet he is sometimes spoken of as a mythical character, because it seems probable that there are few persons, if any, who value material goods and services so highly

as to put them above all other considerations. Not only do men often fail to achieve economic self-interest to the fullest, but they even appear sometimes deliberately to perform uneconomic acts. Thus, people continue to patronize the corner grocer though a new chain store sells more cheaply; one buys from a friend on terms somewhat less favorable than those offered by a stranger; and a prominent financier gives up a million dollar job to accept an ambassadorial post at a few thousands a year.

It is often said that actions such as these are not economically rational—that the persons making these choices are disregarding self-interest. This may or may not be the case. It is quite probable that the personal care given to one's orders by the corner grocer warrants fully the payment of higher prices, that the slight additional cost of goods purchased from a friend means nothing compared with the pleasure of helping him to get established in business, and that the prestige of an ambassadorship is ample compensation for the loss of financial income. In other words, the seemingly uneconomic acts may in reality have resulted in the attainment of the maximum of utility. If so, they are as sound economically as though they had resulted in a gain in material economic goods; for utility, it will be recalled, is the quality that makes economic goods attractive.

Some Examples of Economic Motive.—Viewed in this way, nearly any course of action could be interpreted as economically sound and in complete conformity with the qualities usually attributed to the economic man. But we must not strain the point unduly. And we may say, without straining the point at all, that the bulk of the economic actions that are observable on every hand are in fairly strict accord with the concept of the economic man.

A well-established economic theory states that the intelligent monopolist seeks always to secure the greatest net return. So, also, does the intelligent manufacturer operating under competitive conditions. Consequently, he buys his materials, power, and labor at the lowest possible prices, and sells the finished goods for as much as they will bring. If the price is kept very low, it is with the hope of selling large quantities of the product, and thus realizing the maximum *net* profit.

The practice of buying in a cheap market and selling in a dear one is well-nigh universal. Few persons are so well-to-do that they buy without regard to price; the popularity of "bargain sales" is evidence of this fact. And the laborer, artisan, or manager, in selling his services, seeks ordinarily to get as high a wage or salary as can be obtained; the strikes that are called to force wage increases provide an illustration of this point. In the buying and selling of both commodities and services, then, economic motives are readily discernible.

Usefulness of the Concept.—Because ignorance may prevent one from knowing his best economic interests, and circumstances may interfere with their full realization, it does not follow that the desire for economic attainment is not a powerful force in the business world. There are, even in the physical sciences, certain concepts that describe *ideal* rather than actual conditions. The perfect vacuum, for example, is a thing of the imagination, but it is a useful device none the less. In like manner, though the completely successful economic man has not yet been located, the concept, if not taken too literally, contributes to the analysis and understanding of certain economic relationships.

COMPETITION

The efforts of men to advance themselves economically are shown in their competition one with another. Competition is one of the most pervasive of all economic forces, and is to be found in all fields of economic endeavor. It is, indeed, the basis of most economic theory; for the science of economics assumes the existence of competition, for the most part, and in its absence some of our leading economic laws would be meaningless.

Social Value of Competition.—Competition acts as a sort of regulatory force over the actions of men in their attempts to make economic headway. Self-interest may prompt a man to charge an extremely high price for whatever he has to sell, whether commodities or services; but the existence of competition forces him to modify his charge, and the consumer benefits accordingly.

Under competitive conditions, the sellers of economic goods, in their endeavor to secure trade, bid against each other and thus force the price down. For there is always present the fear that if a high price is maintained, the commodity or service will go unsold. In like manner, self-interest may suggest to a buyer that he offer an exceedingly low price for something that he desires, but the competitive bids of many buyers have the effect of forcing the price up. Through the operation of these two forces of competition, one tending to lower and the other to raise prices, a balance is finally reached.

Prices thus arrived at (as we shall note in detail in our study of value) are, in the long run, just large enough to cover costs of production; that is, they are just sufficient to enable the business man to pay all of his necessary expenses, including a salary for his own productive effort. If the term "fair price" is ever permissible, it is surely in connection with a price of this kind; for the efficient business man is certainly entitled to a price that will enable him to meet all legitimate expenses of production, but it may well be argued that society should not permit him to have more than that amount.

Competition in Selling.—We have already seen that there is competition among sellers who are anxious to dispose of their wares at the highest prices obtainable, and competition among buyers who are desirous of securing these goods, but at the lowest possible prices. These two groups are susceptible of further analysis. Competition among sellers, for example, may relate to *like*, *substitute*, or *unlike* goods.¹

The type of competition among sellers that is most easily recognized is that which takes place among those dealing in *like* goods. Thus the General Motors Corporation, with Chevrolet cars to sell, competes in an intensive manner with the Ford Company offering the "new Ford," in an attempt to secure the patronage of the public. Those who have watched this particular example of competition have noted, first, the predominance of the Ford car in the field of low-priced automobiles; then the encroachment of the Chevrolet through the development of a better

¹This useful classification is borrowed from Raymond T. Bye, *Principles of Economics*, pp. 54-57. New York: Alfred A. Knopf, 1924.

model at a reduced price; next the advent of the "new Ford," with marked improvements and moderate charge; and finally the entrance of the "Chevrolet Six" into the arena. This is a striking example of the severe competition that is ever present in the sale of automobiles, clothing, ice cream, bread, and countless other commodities.

Competition among sellers of *substitutes* may be equally keen. The old-fashioned refrigerator and the modern "Frigidaire" perform the same general function, that of producing a low temperature which aids in the preservation of food. But the fear that this new-fangled device may be substituted for, and eventually supplant, the orthodox refrigerator has struck terror to the hearts of the ice dealers, and we find them combating the individual refrigeration plant with the slogan, "A block of ice cannot get out of order!" The introduction of the oil-burning furnace likewise constitutes a threat against an established business—the anthracite coal industry. And the coal dealers are meeting the challenge with a campaign of advertising, setting forth the advantages of coal for fuel, and the disadvantages of oil. So much for competition between sellers of substitute goods, which include items of food, clothing, shelter, transportation, entertainment, and so on.

The desire to dispose of *unlike* goods also results in competition. Since the average person cannot afford to buy everything that he might like to possess, he is often obliged to choose from a number of possibilities the one which appears likely to bring the greatest utility. He may be able to finance a new automobile or a summer in Europe, but not both. Consequently, automobile dealers vie with steamship companies, each side seeking to emphasize the superiority of the commodity or service that it has to offer. A long list of possible conflicts between sellers of unlike goods might be drawn up. One of the most striking examples of competition of this kind is that which developed recently between sellers of cigarettes and sellers of candy. It is likely that few suspected the possibilities of conflict in this connection until, a short time ago, a leading tobacco concern began to urge the public to use cigarettes instead of sweets, and the manufacturers of candy retali-

ated by advertising the real or imaginary evils of cigarette smoking.

Competition in Buying.—In buying, as in selling, competition is a force to be reckoned with. Probably nowhere is competition between buyers seen more clearly than at a public auction, with its strictly limited supply of a given commodity (consisting sometimes of but a single unit) and a number of would-be purchasers. A situation of this kind frequently results in very spirited bidding, with the price going up and up until finally the prize is carried off by the highest bidder.

The effects of competitive bidding are most apparent in a case such as we have described, where there is a limited supply; but, in a less spectacular way, the same sort of process is followed whenever goods are bought and sold. For all economic goods are, by definition, both useful and scarce. If the commodity in question is very scarce, the bidding by buyers will be brisk and there will be a "seller's market"; that is, one in which the seller holds the advantage. If, on the other hand, a relatively large quantity of the good is available, there will be a "buyer's market," with prospective purchasers unconcerned and even indifferent, since they feel that they will surely be able to obtain as much of the commodity as they require. But the competition between buyers, whether brisk or dull, has the effect of raising prices to a greater or lesser degree, just as the competition between sellers tends to bring prices down.

Competition for the Agents of Production.—Manufacturers and other enterprisers compete not only for the patronage of consumers, but for the agents of production as well. Thus there is a continuous demand for land, labor, and capital, which may be desired by business men in similar industries or in businesses that are widely different, since enterprisers in all fields require land, labor, and capital, and as they bid against each other for the use of these agents the prices that they must pay (in the form of rent, wages, and interest) are forced up.

But the owners of the agents are anxious that they shall be employed, and, rather than have the agents idle, they may, by a process of underbidding, force down the prices of these factors of

production. Here, again, as in the actual sale of commodities, competition among buyers tends to send the price up and competition among sellers tends to drive it down. As we have already explained, the price that is finally paid is the result of an adjustment between these two tendencies.

Interference with Competition.—Competition, like self-interest, may be found in all walks of life, but seldom in the pure, undiluted state. We noted, in discussing the economic man, that, however diligent one may be in seeking his self-interest, the limitations of human knowledge and action render complete success improbable, if not impossible.

Similarly, a lack of knowledge of conditions and circumstances beyond one's control results in imperfect competition. Workers, for example, are anxious to secure high wages. If, then, the wages of carpenters are higher in Baltimore than in Atlanta (living costs being the same), we should expect carpenters to move from Atlanta to Baltimore, and compete for the high-priced jobs in the latter city. As a matter of fact, there are often fairly wide differences in the wage scales of two or more cities, without any appreciable movement of laborers from one to another. The reason may be ignorance of the situation on the part of the workers, or an indisposition to move from an established abode even for a gain in income. Thus, the lack of knowledge on the part of buyers and sellers, and imperfect mobility of commodities and services, prevent competition from working with complete exactness in the several branches of economic life.

Agreements and combinations of various kinds are also responsible for restricted competition. "Gentlemen's agreements" between those in control of great business interests have often interfered with the realization of a perfect, competitive price. The combination, under a single management or policy-forming body, of the important producing units in the oil, sugar, and tobacco industries, has at times had a similar effect. Most powerful of all, in the stifling of competition, is a condition of complete or almost complete monopoly, such as that exercised by the Aluminum Company of America, which has captured practically all of the country's supply of raw materials essential in the manu-

facture of aluminum goods. Perfect monopoly, of course, is the complete absence of competition.

COOPERATION

But not all is competition in the world of economics. Cooperation, also, plays a part, and sometimes an important part, in economic relationships. Whenever it appears to men to be more profitable to work in accord, rather than in conflict, cooperation is likely to take the place of competition.

Cooperation is oftentimes organized, as is seen in the chambers of commerce of business men, the trade-unions of workers, and the marketing cooperatives of farmers and fruit growers. But there is being practiced continually a type of cooperation which is seldom recognized as such by those who take part in it. Indeed, our modern specialization, with every man confining his efforts to a very limited field of work, would be unthinkable without cooperation. The teacher may devote himself to his classes and his books only because others are cooperating by providing him with food, shelter, and clothing. The miner produces only coal, and depends on the cooperation of the farmer to supply him with food. The farmer tills the soil and raises his crops, but looks to the carpenter to build his barn, the machinist to make his implements, and the barber to cut his hair. In any modern factory cooperation may be seen to excellent advantage, for present-day industry is dependent upon the various types of workers, each with his particular function in the productive scheme, joining together intelligently and willingly in turning out finished economic goods.

Examples of cooperation between producers and consumers are apparent on every side. I decide to take a trip to Chicago, and find a host of people anxious to cooperate in making the journey as easy and pleasant as possible. The telephone company cooperates by putting me in touch with a taxicab company. The taxicab company cooperates by delivering me promptly and safely to the railway station. The railroad cooperates by having the train ready for me at a convenient hour, and providing not only transportation but dining and sleeping accommodations. Lunch time

arrives, and I discover that my wants in the matter of food have been anticipated. Not only is food available, but an effort has been made to cooperate with me to the extent of supplying those kinds of food that will appeal most strongly to my tastes. Upon arriving in Chicago, I discover that I am expected, and a hundred hotels are ready to cooperate by providing comfortable quarters.

It is not strictly correct, of course, to intimate (as has been done) that these several acts of cooperation are of a personal nature. On the contrary, they are distinctly impersonal, since those who help to make my trip a pleasant one do so not from personal good will or friendship for me, but from the very practical motive of self-interest. We find, then, in every phase of business life the desire of producers to discover and minister to the needs and desires of others—to cooperate, in effect—so that they, the producers, may secure an income through rendering the desired service.

Self-interest and private property provide the incentive to economic activity, and free enterprise the opportunity. Economic actions sometimes take the form of competition, and sometimes of cooperation, depending upon which appears to be more advantageous. And throughout the entire process may be discerned, sometimes clearly and again vaguely, the figure of the "economic man," calculating whether this particular move, or some other, will bring him the maximum of utility and the minimum of disutility.

THE NATURE OF PRODUCTION

ONE of the major divisions of the science of economics is called "production." Production is usually defined by economists as the creation of utilities. It will be recalled that utility is the want-satisfying power of a good. Anything that we may do, therefore, in the way of putting into an economic good more of utility than it has previously possessed must be considered production.

Most of the activities which take place in our economic society are directed toward this end. The problem of economic society is to change land (that is, natural resources) into consumers' goods, or finished products, and then to get those products into the hands of the persons who are going to benefit by consuming them. In this work of production there are activities of a number of kinds, and we may profitably examine the several types of utilities which go to make up production.

IMPORTANT TYPES OF UTILITIES

Form Utility.—One type which comes promptly to mind is *form* utility. The creation of form utility consists of taking raw materials, or partly finished goods, and aiding them in their progress toward the finished state. The miner who digs coal, the lumberer who hews trees into logs, and the fisherman who catches a supply of sea food are taking natural resources and putting them into a more useful form. The farmer, likewise, creates form utilities in producing grain and meat for food purposes, cotton and wool for clothing, and so on.

But the creation of form utility is most apparent in the field of manufacturing. Iron ore is mined, then smelted into pig iron, later made into steel, and finally fashioned into high-grade tools. In each step of this process an advance is made, and therefore in

each step there is the creation of further utility. Every person engaged in the task of changing iron ore into fine cutting tools is, therefore, a producer. The same is true in every field of manufacture. Cotton is spun into yarn, woven into cloth, and the cloth manufactured into clothing; and each of these processes constitutes a creation of form utility. Building materials are fashioned into houses, and here again form utility is created.

Indeed, so obvious is it that manufacturing ordinarily means the creation of form utilities that some business men and others are inclined to think of the workers in manufacturing plants as producers, and to overlook the fact that the managers in the offices, and the clerks and typists, are producers just as truly as are the manual laborers. All of these persons, however, make some contribution to the production of the article which is being turned out by the plant. And all persons (whether manual laborers or office workers) who are engaged in manufacturing, in agriculture, or in extractive industries such as mining, fishing, and lumbering are creators of form utilities.

Place Utility.—Another type of utility is that which is created by transporting goods from one place to another. Wheat in Nebraska and oranges in California are of no use to consumers in Pennsylvania until they have been transported to the state in which they are to be utilized. This transfer of goods from one region to another brings into being a new utility which is known as *place* utility. The tremendous growth of transportation of passengers and goods throughout the world by water, rail, motor vehicle, and even by air lines, is an indication that very real utilities are created by the movement of people and material goods from one place to another. The enjoyment afforded the people of the United States through the use of sugar from Cuba, coffee from Brazil, rubber from the Malay Peninsula, diamonds from South Africa, and so on, must be credited in large part to those who have developed our modern systems of transportation, by means of which these commodities from distant lands have been made available for us.

Possession Utility.—But the manufacture and transportation of economic goods would not in all cases render the goods truly useful to the ultimate consumer. A Hamilton watch in the show-

case of the jeweler is of little use, whereas in the hands of a person who has no watch it would be extremely useful. Therefore, the sale of a watch, or of any economic good, creates a new utility which is known as *possession* utility. The watch is distinctly more useful in the hands of the purchaser than in the possession of the jeweler. It is correct to say, therefore, that many persons who are engaged in salesmanship are producers quite as much as are those who make the goods in the first place.

We must include, also, in the creation of possession utility much of the advertising which is carried on so extensively today. It has been estimated that our annual expenditure for advertising in the United States is about two billion dollars. In a single year (1929) newspaper advertising alone is believed to have amounted to more than \$750,000,000. Whenever, through the medium of advertising, a person is enabled to gain possession of an economic good which adds to his stock of genuine utility, the advertising may properly be called productive.

But some at least of our present-day advertising simply induces the public to purchase commodities which in the end bring little if any utility. Moreover, much advertising is what may be termed competitive or combative advertising, being designed to persuade consumers to buy one particular brand of goods in place of another to which they have become accustomed. Examples may be seen on every hand. We are urged to smoke Lucky Strikes in place of Camels, and Camels in place of Old Golds, and Old Golds in place of Lucky Strikes. It seems probable that advertising of this kind, in the main, simply transfers one's cigarette allegiance from one brand to another and without any increase in utility, unless perchance in the process the smoker is introduced to a brand of cigarettes which really meet his needs more fully than those which he has previously been smoking. No genuine utility has been created by this advertising. Of course, advertising of this kind may result in initiating a non-smoker into the joys of cigarette-smoking, in which case it may be said that a utility has been created, and the advertising is productive.

Time Utility.—Another type of utility is *time* utility. Certain individuals are engaged in the storage of goods. Storage consists of holding goods from one season of the year when they are little

wanted to another time when they will be more useful. Owners of grain elevators in the "wheat belt" store millions of bushels of wheat at the height of the harvest season, and hold this wheat until such time as there may be a demand for it. Cold storage operators put away eggs in the summer, when eggs are plentiful and cheap, and hold them until winter when eggs are scarce and high. The very fact that the price is high in winter indicates that the cold storage people have rendered a utility—a *time* utility—by holding these eggs until they are demanded by the public. The speculators in the produce market render a service somewhat similar to that which has just been described, but their activities will be dealt with in a later chapter.

Service Utility.—Finally there are persons engaged in creating *service* utilities. This particular classification has to do with those who are rendering personal service, rather than dealing in concrete goods. The lawyer, the doctor, the preacher, and the teacher do not sell material goods, but a personal service consisting sometimes simply of advice or information. They do, however, in many instances create a genuine utility, and consequently it would be unfair not to class them as producers.

Our business life is facilitated by the adjustments made in our courts; hence, lawyers contribute indirectly to business progress. Physicians who assist in maintaining good health of individuals and society in general are certainly contributors to economic success; and the same may be said of ministers or other advisers who bring comfort, consolation, and peace of mind to producers in society. Teachers are very definitely expected to aid in developing intelligence, and in some cases their work is distinctly vocational and directly aimed at the training of skilled workers or business experts.

There are, in addition to these, our governmental officials, from the President of the United States down to the humblest public servant, all of whom help us to carry on the orderly conduct of our business life. There are also individuals engaged in handling the risks of industry, such as insurance men, who render service utilities. This list is by no means complete. Any one from personal observation will be able to add many examples not only of service utilities but of those of other types.

Difficulty of Classifying Utilities.—The classifications which have just been made are not necessarily hard and fast. Like most classifications, they are made largely on an arbitrary basis; and it may be confessed that it would be impossible to classify all types of producers in a highly developed economic society. The best that can be done is to suggest that there are a number of kinds of production (since there are a number of types of utilities being created), and to point out the fact that any person who in any real sense of the term furthers production by an act which results in additional utility is a producer. Production begins with the raw material and does not end until the finished article is in the hands of a person by whom it is to be consumed. Every one who helps it along on its journey is a producer.

Unproductive Activities.—There are, however, several forms of activities which must be accounted unproductive. We have already referred to competitive or combative advertising. Certain kinds of speculation, especially dabbling in stocks by those who are inexperienced and are virtually betting on the turn of the market, create no utilities and are therefore unproductive. Such predatory activities as adulteration of food, robbery, and the exercise of monopoly control to secure unreasonable profits are also unproductive. To cap the climax we may mention aggressive warfare, which not only is not productive of utilities but in every sense of the word is destructive. Something may possibly be said for warfare as a defensive measure, though it is difficult to make sure that a particular conflict is genuinely defensive; for every nation which engages in battle is likely to attempt to justify its action on the ground of defensive necessity. War conducted on a modern scale is so terribly destructive of both material goods and men that we are driven to the conclusion, speaking from the economic point of view, that "no matter who wins, everybody loses."

THE FACTORS OF PRODUCTION

The productive process, as we have seen, consists of converting raw materials into finished goods, and getting these goods into the hands of the persons to whom they will yield utility. This process may be illustrated graphically by a series of concentric

circles, such as we have in Figure 3. The innermost of these circles is intended to represent land, which, it will be remembered, includes all natural resources. The outermost section is labeled "consumers' goods," and here we find those finished articles which are ready for consumption. Between these two stages in the productive process is a whole series of intermediate stages, indicated in the diagram by dotted circles. All of this space be-

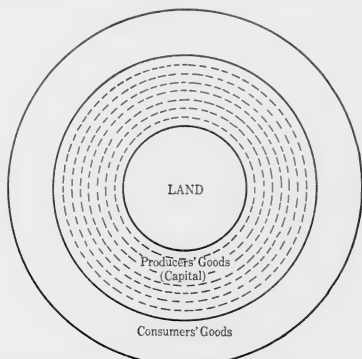


Fig. 3: THE PRODUCTIVE PROCESS: This process consists of converting land into consumers' goods, with the aid of producers' goods or capital.

tween land and consumers' goods is occupied by capital, or producers' goods.

Land: The Natural Factor.—The importance of *land* in economic production has already been noted, and need scarcely be emphasized further. It is a wholly indispensable factor, for without it there could be no production. Land has already been described as including all natural resources, and we can readily see that these natural resources, such as soil fertility, mineral deposits, natural vegetation, water power resources, and so on, are absolutely essential to the conduct of modern industry.

The true productive significance of the land assets of the United

States cannot be demonstrated statistically, but a few figures may be given to show how richly this country has been endowed in the way of natural resources. The total land area of the United States is about two billion acres, of which approximately one-half is in farms. This farm land (apart from buildings) was valued at fifty-five billion dollars in 1920. Though we originally had some 822,000,000 acres of forests, our present total is only about 470,000,000 acres, of which but 138,000,000 acres are virgin forest land.

We are using our mineral resources rapidly, the value of minerals produced in the United States in 1920 totaling nearly seven billion dollars. The most important minerals, in total value of product, are coal, iron ore, and petroleum. Our stocks of fish and game, originally very extensive, have been dissipated by wasteful exploitation. The water-power resources of the country are of great economic significance, and a controversy now rages as to whether they shall be developed under private or public control.

Labor: The Human Factor.—But natural resources usually fail to yield utilities until they have been worked upon by man. Hence we say that *labor* is an essential factor in production. Labor is ordinarily defined as human energy expended for the purpose of acquiring income. This definition rules out those activities of man which are recreational in their nature. A man is a laborer only when the tasks in which he engages are carried on for the sake of the income derived, and not for the incidental pleasure of the undertaking.

Here, as in so many instances, we find it difficult to classify individual items with absolute exactness. According to our definition "Red" Grange was not a laborer when he played college football, but he became a laborer the moment he entered the field of professional football; yet he probably worked as hard in one case as in the other. Of course, a college football player would be a laborer if he were receiving for his playing a scholarship of some kind, or even if he were playing because he thought that the reputation which he gained as an athlete would serve him in an economic way in after life. Indeed, there have been examples of college athletes who have capitalized their athletic achievements in the conduct of their business after graduation. It is

almost impossible, then, to make exact classifications, but for all practical purposes the student of economics can decide in each given case whether a man is a laborer or not. A special type of labor, known as "business enterprise" or "management," performs a function so different from that of ordinary labor that it will be dealt with as a separate factor of production in a later paragraph.

In a highly industrialized region, such as the United States, labor is employed in a multitude of ways. An estimate recently made public by the National Bureau of Economic Research states that the number of persons gainfully employed in this country (the term "gainfully employed" including all who are engaged in occupations which bring in a money income) totals nearly forty-six millions. Almost ten millions of these are in business for themselves, and should be classified as "business enterprisers" rather than "labor." Deducting this number, we have left some thirty-six million workers who, in economic terminology, constitute the paid labor supply of the country.

Approximately ten millions of these work in manufacturing plants, and another ten millions on farms. Some four millions are engaged in selling goods, and about three millions in transportation work of various kinds. Three millions spend their time in domestic service, and about the same number hold clerical positions. When we have listed a million workers engaged in mining; nearly a million soldiers, policemen, firemen, and other public servants; and about two million professional workers, such as teachers, clergymen, and the like, we have accounted for the main divisions of the great labor force of the United States.

Capital: The Instrumental Factor.—*Capital* may be defined as produced goods intended for further production. This definition sets it apart from land (that is, natural resources), since the latter is not, in the economic sense, "produced," but is a free gift of nature. Capital includes goods which are designed for ultimate consumption; that is, partly finished goods in process of production, which, while they are no longer in the raw state, have not yet progressed sufficiently far as to be ready for the consumer, and consequently are not consumers' goods. Capital includes, also, goods that are known as "instruments of production," such as

factories, machines, and tools. Capital of this kind is not destined to satisfy human desires directly, but serves only as a means toward further production of consumers' goods. A tremendous amount of the wealth of every modern industrial society is comprised of capital, which is indicated in the central, or intermediate section, of Figure 3.

It is not possible to give a complete or strictly accurate idea of the stock of capital in a great industrial country, but estimates of the Bureau of the Census are of some assistance in this connection. Manufacturing machinery, tools, and so on, in the United States, were estimated, in 1922, to be worth \$15,783,000,000; farm implements and machinery, \$2,605,000,000; livestock (a form of capital), \$5,807,000,000; railroads and their equipment, \$19,951,000,000; and transportation and transmission enterprises other than railroads, \$15,414,000,000.

The first three of these five items are unquestionably capital, as we have defined the term; but railway companies and other types of transportation and transmission organizations doubtless include in their valuations certain items of non-capital, such as land, franchises, and so on. A number of deductions would have to be made, therefore, before our picture could be considered correct. Additions, also, would be necessary, for the figures given above do not include the value of factory buildings, or "improvements" such as the clearing, drainage, and fencing of agricultural land. At best, then, the above estimates are merely suggestive of the large quantity of capital essential to the conduct of present-day economic projects.

An examination of the world about us shows clearly that we are regularly turning raw materials into goods which cannot give direct enjoyment to human beings, but which do it in an indirect or roundabout way. No particular enjoyment is derived from the operation of an oven in a baking establishment. Consequently, it could not, by any stretch of the imagination, be called a consumers' good. However, it is distinctly useful in that it contributes to the production of bread, which is, of course, a finished article intended for immediate consumption, and not made with the thought that it will aid in producing something else.

Capital, then, is one of the most important factors of produc-

tion. It is generally recognized as an essential part of any highly productive economic order. Even the most radical of Socialists have today but little fault to find with the use of capital; and few, if any, would suggest seriously that we do away with its use and revert to the old-time, hand method of manufacture. If we did this, we should suffer through the limited quantity of consumers' goods we should then be able to make. The Socialists do believe, however, that capital should be owned and controlled by the state, and not by private individuals as is the case at the present time in most countries.

Business Enterprise: The Coordinating Factor.—A fourth factor in production is known as *business enterprise*. This is labor of a special kind which has for its function the promotion or conduct of business. Though business enterprisers are "laborers," in the broadest sense of the term, since they expend human energy for the purpose of acquiring income, yet they occupy so important and so unique a position in the business world that it seems best to distinguish between them and laborers in general.

The outstanding business enterprisers of a country are men who, like our Carnegies and Marshall Fields, see visions and dream dreams of an economic nature. They are convinced of the possibilities of business development along lines which, to the ordinary observer, seem doubtful of success. Then, too, they possess the ability to enlist others in their enterprises: To secure the capital necessary for the conduct of the business, to find suitable sites, to attract technicians, and to engage managers who in turn will be able to locate and direct properly the labor forces essential to the successful operation of their undertakings. The enterpriser, in short, is the man who gets together the other factors of production—land, labor, and capital—and sets them to working properly. He performs the function of coordination in production.

Abilities such as these, capable of organizing and conducting large economic undertakings, are relatively scarce. Consequently, we have rather few really great captains of industry, and because they are few they are likely to reap large economic rewards. But there are many men who successfully carry on small manufacturing or merchandising businesses, or engage in business on

their own account as farmers, lawyers, engineers, physicians, and so on. These enterprisers on a small scale are so numerous that the National Bureau of Economic Research estimates that there are at present as many as 9,700,000 business enterprisers in the United States.

Not all of this large number, it need scarcely be added, are successful. Many attempt to become business enterprisers without possessing the requisite ability. These sooner or later fall by the wayside, and their names go to swell the lists of bankruptcies in this country.

DIRECT AND INDIRECT PRODUCTION

Production is indirect or direct, depending upon whether a consumptive good is or is not produced with the assistance of capital. A time-honored illustration, showing clearly the difference between direct and indirect production, has to do with the provision of an adequate water supply. It describes the case of a savage who, living in a simple hut several hundred yards from a spring, wishes to quench his thirst. He goes to the spring and throwing himself on the ground sips up as much of the water as he wishes to drink. This, obviously, is direct production.

Example of Indirect (or Roundabout) Production.—But it may occur to this man that a waste of effort is involved in going to the spring every time he is thirsty, and so he makes himself a cup fashioned from a gourd. Now he is able, with every trip to the spring, not only to satisfy his immediate needs, but to carry back to his hut sufficient water to make unnecessary an early return to the source of supply. That is to say, he has made a piece of capital which renders each trip to the spring more productive than it used to be. A little later he decides to construct a larger piece of capital; and so, with the aid of very crude tools, he shapes part of a log into a rough bucket, which will hold perhaps a gallon of water in place of the pint which he could carry in the cup. Now a single trip to the spring each day provides him with all the water that he wishes to consume.

By and by, as his family increases in size and the demand for

water becomes greater, he may decide to build a pipe line from the spring to his hut, hollowing out logs, laying them end to end, and thus supplying the necessary conduit. All of this means a great expenditure of time in the creation of capital; but once the pipe line is finished, assuming that proper attention has been paid to the laws of physics, our capitalistic or indirect producer has flowing to his hut, with no further trouble on his part, a continuous supply of fresh water. If we wish to carry the illustration a step further, we may jump rather abruptly to the water supply systems in our great cities, where the amount of capital involved is extremely great but the service rendered to the consumers is likewise very great.

Economy of the Indirect Process.—We have here, then, an example of a productive process which has become progressively capitalistic, and therefore increasingly indirect. The savage at the outset used the direct process of production. The modern city dweller is supplied with water by a very indirect or roundabout process. It has taken many days or even years to provide the equipment for our modern water systems, but no one will question that the time has been well spent; and (judging from this illustration, and thousands of others that may be drawn from daily life) we may say with assurance that the indirect or roundabout process of industry is decidedly economical in the long run.

The Accumulation of Capital.—The essential element of this indirect process is the use of large quantities of capital. This capital is accumulated gradually. It is accumulated because some persons, instead of consuming everything that they create, decide to save part of their product, or income. Capital accumulation means refraining from consumption, and turning into producers' goods, or capital, a part of an income which might have been spent entirely on consumers' goods. When an individual reduces his consumption of ice-cream, theatrical performances, excursions, and other luxuries, and with the savings thus made purchases machinery (as he may do, for example, by buying a share of stock), he is then creating capital and is himself becoming a capitalist. He is placing part of his income in the middle section

of our diagram, where it will remain for a time, and perhaps permanently, as an important factor in our industrial process.

Capital, therefore, in many cases represents self-denial on the part of the savers; but in some instances incomes are so large that it would be absurd to say that there has been any sacrifice. Not until a person has an income larger than he needs for immediate use (that is, a *surplus*) can he afford to save. Capital, therefore, comes about as the result of a surplus; and, as we have seen, this surplus must be saved and invested in producers' goods before there is any addition to the total stock of capital in the country.

The Nature of Capital.—It will be well, at this point, to emphasize the fact that capital consists of goods, and not of money. The business man will often speak of his capital in terms of money, but if we were to question him closely we should discover that what he really has in mind is the concrete goods that his money has purchased, and that he has expressed these goods in terms of money simply as a matter of convenience. When a manufacturer, for example, refers to his capital of \$50,000, what he says, in effect, is that he controls land, a factory building, machinery, and certain materials, which represent an outlay of \$50,000. To the economist, all of these concrete goods, except land, may properly be called capital. Land, as we have seen, is placed in a separate category, for reasons which will appear later.

Unless this economic concept of the term "capital" is kept clearly in mind, confusion is certain to arise. We have seen that cups, buckets, and pipe lines are productive, because they are producers' goods (or capital goods) which make it possible, with a given expenditure of human effort, to secure a larger supply of water than could be had without their aid. Money *as such* does not, of course, aid in the production of water or anything else. But since it is a claim upon wealth, it may be exchanged for cups, buckets, pipe lines, and other useful pieces of producers' goods, and thus performs a useful function in a highly organized society, as we shall note in detail somewhat later in our study of economics.

In much of our economic discussion, the issues become much clearer whenever we are able to push aside the money concept

and get down to fundamentals, which usually means speaking in terms of goods. Hence, it is recommended that we hold fast to our definition of capital as "produced goods intended for further production."

A Graphic Comparison of the Two Processes.—Figure 4 indicates graphically that the indirect process of production yields a greater quantity of consumers' goods than the direct process. Here we have production by two types of economic society. One society engages very largely in direct production, while the other postpones consumption of goods to some extent, accumulates

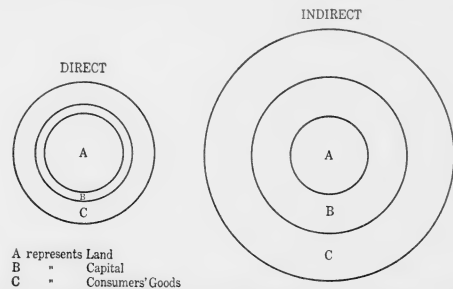


FIG. 4: COMPARISON OF DIRECT AND INDIRECT PRODUCTION: The diagram shows that the indirect process, involving the use of large quantities of capital, is much more productive of consumers' goods than is the direct process.

capital, and proceeds to carry on indirect production. Assuming that the two begin with the same amount of land, or natural resources, we find that the people employing the direct process have in the intermediate section of their economic system only a slight amount of capital. This, indeed, is exactly what the direct process means. And because there are but few factories, machines, and other productive agents in this society, there is also only a limited amount of consumers' goods. But the society which is pictured as having a large amount of capital (which means that it is engaging in indirect production) enjoys, as the result of its

adoption of the roundabout process, a much greater quantity of consumable goods.

Production is the creation of utilities.

Utility is the want-satisfying power of a good.

Labor is human energy expended for the purpose of acquiring income.

Business enterprise is labor which has for its function the promotion or conduct of business.

CHAPTER V

THE ARRANGEMENT OF THE PRODUCTIVE FACTORS

Nor only must the necessary factors of production be brought together and formed into a going machine, but they must be employed in the proper proportions if production is to be efficient and therefore economical. Unless they are so employed, the maximum production per unit of cost cannot be attained.

THE LAW OF DIMINISHING RETURNS

This fact has long been understood in part, but its full significance has not always been appreciated. The possibility of affecting the return from a given piece of land by varying the quantities of labor and capital that are employed on it, found early expression in the Law of Diminishing Returns.

Statement of the Law.—The Law of Diminishing Returns is usually stated about as follows: "In a period during which there are no changes in the methods of production, if successive units of capital or labor (or both) be applied to land, then, after a certain point has been reached, each additional unit of these productive agents will add to the *total product* a lesser amount of product than was added by the preceding unit." The law is applicable to land of all kinds, but its workings may be seen most readily in agriculture, since here the productive agents are relatively simple and the product is easily measurable.

Diminishing Returns in Agriculture.—An actual experiment in southeastern Kansas, conducted for the purpose of ascertaining the effects of varying applications of fertilizer in the growing of wheat, has provided data which contribute to an understanding of the principle of diminishing returns.¹ The results of the experiment are given in Table I.

¹ These data are taken from the *Yearbook* of the United States Department of Agriculture, 1926, p. 477.

TABLE I: EFFECTS OF BONE MEAL UPON THE YIELD OF WHEAT IN SOUTHEASTERN KANSAS
(Source: United States Department of Agriculture)

Varying Units of Bone Meal (Capital)	Yield (Bushels)	Increase (Bushels)	Value of Increase at—		
			\$1.00	\$1.20	\$1.40
0	10.6				
1 (30 lbs.)	14.9	4.3	\$4.30	\$5.16	\$6.02
2 (60 lbs.)	17.3	2.4	2.40	2.88	3.36
3 (90 lbs.)	18.7	1.4	1.40	1.68	1.96
4 (120 lbs.)	19.5	.8	.80	.96	1.12
5 (150 lbs.)	19.9	.4	.40	.48	.56
6 (180 lbs.)	20.2	.3	.30	.36	.42

This table shows the effects of varying quantities of bone meal (which is *one* of many forms of capital) when used in conjunction with *fixed* quantities of other kinds of capital (such as seed and implements) on a *fixed* quantity (one acre) of land. Under the conditions outlined, any changes that occur in the total product must, of necessity, be due to changes in the quantity of the variable factor, bone meal.²

Our figures show that each increase in the number of units of this factor has brought an increase in the *total yield* of product. If no bone meal is used, the other capital, plus labor, will produce 10.6 bushels of wheat on an acre of land. If one unit (30 pounds) of fertilizer is applied, the total product jumps to 14.9 bushels. The increase in product continues throughout the entire illustration, the greatest total yield (20.2 bushels per acre) being obtainable with the application of 6 units (or 180 pounds) of bone meal.

The Point of Diminishing Returns.—But the next column of the table (giving increase in bushels) shows clearly that, though the total product makes a steady increase, this increase, “after a certain point has been reached,” is *at a diminishing rate*. If no fertilizer at all is used, the product is 10.6 bushels and if one unit (30 pounds) is applied, the yield is increased by 4.3 bushels. But

² Although, in order to get uniform weather conditions, an experiment of this kind must be conducted on several separate acres of similar land (each with a different quantity of the variable factor), the results may properly be said to indicate (as is shown in the table) the effects of varying applications of fertilizer on a single acre of land.

the use of a second unit brings a further increase of only 2.4 bushels, and the gains through the employment of third, fourth, fifth, and sixth units are still more discouraging, the final (or sixth) unit resulting in a yield only three-tenths of a bushel greater than if this unit had not been employed.

The question now arises as to the exact position of the “certain point” to which reference has been made. In our illustration, the point in question is that at which the first unit of the variable factor has been applied, for this is the point *beyond which* further units cannot be added without diminishing returns beginning to operate. Of course, the point of diminishing returns will not always coincide with the first application of the variable factors, but it will inevitably be that point in the productive process *after which* “each additional unit of these productive agents will add to the total product a lesser amount of product than was added by the preceding unit.”

It is entirely possible (though on this matter the table throws no light) that, *up to the point of diminishing returns*, each additional unit might bring a *greater* increase in product than was added by the preceding unit, or, again, an increase *exactly equal* to the increase added by the preceding unit. When results such as these are experienced, they are known as “increasing returns” and “proportional returns,” respectively, but these two conditions need not occupy our attention further at this time.

Graphic Presentation of Diminishing Returns.—Diminishing returns may be shown graphically through the use of curves such as appear in Figures 5 and 6. In Figure 5, we have a graphic representation of Column 1 of the table, indicating the growth in *total yield* of wheat resulting from the use of successive units of the variable factor, bone meal. The general upward trend of the curve shows that the increase in total yield is continuous, and the dotted vertical lines measure the gain made with the use of each additional unit. Here we see the significance of the statement that the successive increments to the total yield are at a *diminishing rate*.

Figure 6, which plots not total yield, step by step, but only the successive increases, shows even more clearly that each of these

increments is smaller than the preceding one, giving a curve with a continuous downward trend.

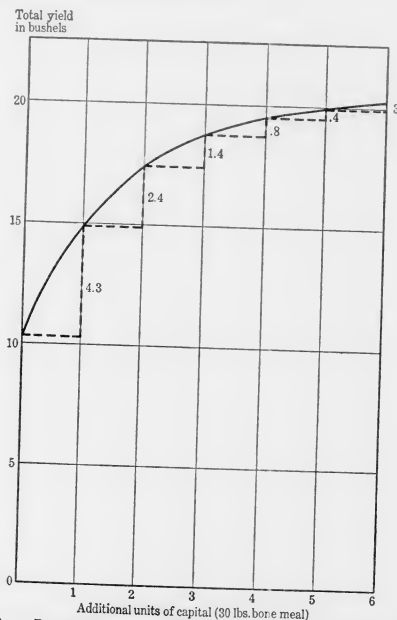


Fig. 5: TOTAL PRODUCT CURVE: Showing the increase in total yield of wheat, but at a diminishing rate. (Compare Table I.)

A Note on "Product" and "Value."—The Law of Diminishing Returns is certain to prove confusing unless the student keeps steadily in mind the fact that the "product" referred to in the statement of the law is *physical product*, and not the *value* of that product as expressed in price. Therefore, the point of diminishing

returns does not necessarily indicate the point beyond which it is unprofitable to carry cultivation. Whether it will pay the farmer to push cultivation far beyond the point of diminishing returns

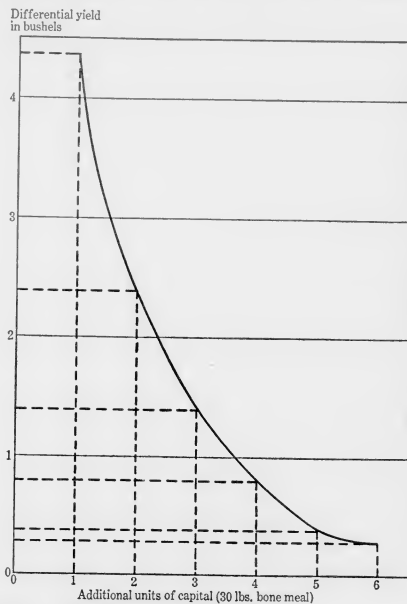


Fig. 6: DIFFERENTIAL PRODUCT CURVE: Showing that, after the point of diminishing returns, each increment is smaller than the preceding increment.

depends upon his costs of production and the price at which the commodity in question is selling.

The Point of Most Profitable Use.—The last three columns of Table I show the money value of the several increases in

yield when wheat is bringing \$1.00, \$1.20, and \$1.40 a bushel, respectively. The estimated cost of each unit (30 pounds) of bone meal is 75 cents. With these figures before us, the money gains or losses that will be experienced through the use of more or fewer units of this variable factor may be easily calculated.

Our farmer will naturally continue to apply bone meal so long as the money return for the additional yield is greater than the outlay for fertilizer. If wheat is selling at \$1.00 a bushel, it will pay him to use four units; for the use of the fourth unit is followed by an increase in yield amounting to eight-tenths of a bushel, which will sell for 80 cents, whilst the fertilizer costs but 75 cents. It will not pay, however, to use a fifth unit, since the extra cash return (for the extra four-tenths of a bushel) would mean a net loss of 35 cents.

An examination of the other two columns reveals the fact that the fourth unit is, in each instance, the last unit that the intelligent farmer (in possession of all the necessary factors) would employ. If, however, the price of wheat were \$2.00 a bushel, it would pay to employ five units of fertilizer, since the additional product accompanying the use of the fifth unit would then sell for 80 cents, with a net gain of 5 cents.³

Exhaustion of Soil Fertility.—It should be noted that the diminishing returns we have been discussing are not the result of exhaustion of the fertility of the soil. It is true that, if the chemical elements necessary to plant growth (nitrogen, phosphorus, and so on) are not returned to the soil from year to year, the fertility will gradually be exhausted and the land will produce in successive years smaller and yet smaller crops. But the experiment that has been used for illustrative purposes takes no account of whether the soil is rich or poor. The Law of Diminishing Returns is applicable to land of *any given degree of fertility*.

We may remark, parenthetically, that ignorance is no excuse nowadays for permitting impoverishment of the soil through lack of replenishment of the necessary plant food. A farmer may now have his soil analyzed, and thus discover in what properties it is deficient. If, then, he allows his farm to "run down," he is

³In these calculations, no allowance has been made for increased cost in harvesting and marketing the extra yields of wheat. But the cost in the case of a crop of this kind is a small one.

no more deserving of sympathy than is the manufacturer who fails to make provision for the replacement of factory machinery as it wears out.

Influences Counteracting Diminishing Returns.—Toward the end of the eighteenth century, and early in the nineteenth, Thomas Robert Malthus, an English clergyman, wrote a series of essays dealing with economic problems. In these essays he pointed out that a serious situation might eventually arise, by reason of (1) the tendency of population to multiply rapidly, and (2) the resistance of nature to man's attempts to increase indefinitely the agricultural product to be had from a given amount of land.⁴ In other words, Malthus saw, as he thought, that there was taking place a much more rapid increase in population than in the means of subsistence (by which he meant, primarily, food-stuff); and he indicated that, because of the discrepancy between the two, a clash was inevitable unless measures were adopted to avoid it.

But we find that overpopulation, in the sense of numbers too great for the available food supply, has not been experienced by the world as a whole. And because the world population is now greater than ever before, and yet food per capita is more abundant than at any time in the past, some persons have supposed that the Law of Diminishing Returns has been disproved. This supposition is false, and arises from a misinterpretation of the law. For the law has, as one of its conditions, no change in the methods of production; and agriculture, as we know, has taken tremendous strides in the past century and a quarter. Moreover, men have not confined their activities to fixed quantities of land, but have spread throughout the world and have brought under cultivation great stretches of new agricultural land. Finally, the rate of increase of population, which gave Malthus cause for alarm, has declined in recent years.

Discarding now the references of Malthus to increase in population, and considering only the question of diminishing returns, we may say that if thus far the tendency toward diminishing returns has seemed to have no significance as a world problem, it

⁴Malthus did not mention specifically the principle of diminishing returns, but his doctrine appears to have been based on this principle.

is because of certain counteracting influences, such as developments in methods of agriculture and the possibility of spreading out over new areas of land. Counteracting forces of this kind have unquestionably served to offset some of the effects of the Law of Diminishing Returns, but this does not mean that the principle of diminishing returns has not been operating all the while.

Though the introduction of improved methods of farming has brought a larger yield per acre for a given expenditure of human effort and capital, even the most scientific agricultural methods will not enable a farmer indefinitely to apply labor and capital to a field without experiencing diminishing returns. Farmers know from experience that diminishing returns result from excessive applications of labor and capital to a given quantity of land, and, noting the decline in successive increments as more and more units of the variable factors are applied, they seek to avoid diminishing returns by increasing the acreage under cultivation.

The fact that diminishing returns have not yet resulted in great deprivation and suffering does not, then, in any sense invalidate the Law of Diminishing Returns. The law has been working right along, and its effects may be observed by an examination of *specific pieces* of land. Its influence upon the actions of individual farmers is apparent, for diminishing returns have caused them, in many instances, to adopt extensive instead of intensive methods of cultivation. And the importance of diminishing returns as a world problem will become evident whenever (should such a time come) we have reached a fixed stage in agricultural knowledge and practice, and at the same time are compelled to limit agricultural activities to a fixed quantity of land; in a word, whenever the conditions laid down in the Law of Diminishing Returns apply throughout the world.

The Variable Factor or Factors.—In an earlier paragraph, reference was made to several kinds of capital that might be used in the growing of wheat. Of the three kinds that were mentioned (seed, implements, and fertilizer), fertilizer alone has thus far been considered as a variable. This, indeed, was the only variable factor that was employed in the actual experiment, and through the application of varying quantities of this one factor

the practical importance of the Law of Diminishing Returns was demonstrated.

But it will readily be seen that seed or implements might have been used, in place of bone meal, as the variable factor; or any two, or all three, of these different types of capital could have been employed in the experiment, and in each instance diminishing returns would have been experienced. Seed, of course, is an essential in the production of agricultural crops, but if seed be applied to a given plot of land in steadily increasing quantities, a point will be reached after which each bushel of seed, while adding something to the total yield, will not be so effective in increasing the yield as was the preceding bushel. This is true, also, of the employment of successive units of farming implements, or machinery; and, likewise, of capital *as a whole*.

If the quantity of labor, instead of capital, should be increased unit by unit, the result would be similar in principle to that brought about by varying the quantities of capital. The Law of Diminishing Returns describes, therefore, the effects of increasing applications of capital *or* labor. And it describes equally well the effects of increasing applications of capital *and* labor; for if *both* of these factors be made variable, land alone remaining fixed in quantity, diminishing returns will inevitably set in after a certain point has been reached in the use of the variable factors.

We shall not take the time that would be required to trace through, step by step, each of these possibilities. The skeptical student may do so for himself. The principle involved is easily comprehended. It is the generally recognized fact (which will be emphasized in our study of value) that after a certain point is reached the usefulness, or utility, of a single unit of a given commodity diminishes as more and more units are employed in connection with a fixed factor. If more and more automobiles are used in connection with a fixed factor (say, one man) the usefulness, or utility, of the last car (say, the fiftieth) is much less than that of the first car, and even less than that of the forty-ninth.

In like manner, if more and more bushels of seed, or pounds of fertilizer, or units of machinery, or farm laborers, are employed on a fixed quantity of land, the final units of each or all (always

"after a certain point has been reached") will be less useful (that is, less productive) than the preceding unit.

Possibility of Negative Returns.—It is conceivable that the variable factors might be used in such exceedingly large quantities that even the *total product*, and not only the *rate of increase*, would decline. Seed might be sown to so great an extent as to crowd the stalks of wheat and interfere with proper heading and ripening. Fertilizer might be used in excess, and the plant life be "burnt out" as a consequence. Workers might be employed in such large numbers as to trample the crop underfoot. And so on. The question is a purely academic one, of course, since it is extremely unlikely that a farmer would be so foolish as to continue to apply expensive agents of production, if their addition brought a smaller total return than their cost. But our illustration shows how the *positive increases* tend to become progressively smaller, and may even be turned into *negative increases*, or positive losses.

Intensive and Extensive Use of Land.—We have been assuming, throughout our analysis, the use of a fixed quantity of land, and we have seen that land which is cultivated *intensively* (that is, farmed with large quantities of capital and labor) is subject to diminishing returns. But *extensive* cultivation, also, results in diminishing returns.

There are many grades of land, ranging all the way from very fertile to very poor, and from that land which is admirably located to that which is remote from population, transportation, and so on. Ordinarily, the best pieces of land in a given region are taken up and cultivated first. But land of the highest quality is limited in quantity and, sooner or later, recourse must be had to inferior grades, in order to meet the demand for the agricultural products necessary to supply a growing population. The farmer with capital and labor at his command can use these productive agents in either of two ways. He may, first of all, apply all of the capital and labor to his limited amount of superior land; but, if he adopts this plan, he will find, after a time, that the units of capital and labor that have been applied most recently are less productive than those which were employed at

earlier stages of the process. Here are diminishing returns in intensive cultivation.

And if our farmer should attempt to escape diminishing returns by engaging in extensive, instead of intensive, cultivation, he will again experience the phenomenon of diminishing returns, in the form of continuously declining increases for each unit of the variable factors that are used. For capital and labor are less productive on inferior land than on land of superior quality; consequently, if plots of second, third, and fourth grades are brought under cultivation, they will yield, for each unit of capital and labor employed, progressively smaller additions (or increments) of product.

A unit of capital and labor on second-quality land produces a smaller yield than the same capital and labor will produce on first-quality land. A unit applied to third-quality land is less productive than a unit on land of second quality. And so on. Diminishing returns, therefore, are not peculiar to intensive cultivation, but are operative in extensive cultivation as well.

Diminishing Returns on Building Sites.—In the construction of buildings, as in agriculture, there is a tendency toward diminishing returns. Modern methods of construction make it physically possible to erect buildings reaching 150 stories, but this does not mean that it is economically feasible to do so. The costs of construction mount rapidly as the height of a building increases, owing to the necessity for more substantial foundations and the expense of raising materials to the higher stories in course of construction, to mention but two sources of additional cost. If the sixtieth floor of a building contains offices duplicating exactly, in number and arrangement, those on the fifty-ninth floor, the chances are that it presents an illustration of the principle of diminishing returns, since the capital and labor required in building the sixtieth story are greater than are needed in constructing a single story at a lower level. That is, the additional product *per additional unit of capital and labor* declines after a time.

Diminishing returns may be observed, also, in the *operation* of a great office building, once it is ready for occupancy. The taller the structure the greater the cost of elevator service, the higher

the expense for heating, and so on. It is safe to say, therefore, that in the use of land for building purposes, the principle of diminishing returns begins to operate after a certain point. The original cost of the building and the operating costs, *per unit of accommodation provided*, are greater in an extremely lofty building than in one of more moderate height. This is just another way of saying that diminishing returns are making themselves felt.

We shall not be able in our consideration of building sites, as was possible when dealing with agricultural land, to determine the exact point of diminishing returns. In agriculture the units of product (such as bushels of wheat) produced on a piece of land are alike, and may readily be measured. But no two rooms in an office building are identical, even though they are exactly alike in size and other physical aspects; for no two offices can have precisely the same location, and location is, in this instance, a very important factor. Consequently, though we may easily measure bushels of grain, it is not possible to measure, with any degree of accuracy, the *units of convenience* afforded by a building of one kind or another.

But though we cannot locate, in the case of building land, the definite point of diminishing returns, we may say with assurance that such a point does exist. Diminishing returns relate, as we have seen, to physical product, but decreases in the amounts of the successive increments of agricultural product are reflected in the progressively smaller values of these successive increments. After a time, the value of the increment obtainable through the use of additional units of the variable factors becomes so slight that it seems unwise to make further applications. The point of most profitable use has now been reached.

Most Profitable Use of Building Sites.—In the use of building sites, as in agriculture, there is a point of most profitable use. The presence of such a point in the case of building sites argues, also, for the existence of a point of diminishing returns (relating to physical product), since the decline in value of successive increments must result from a decline in the physical product of which the successive increments consist. If, in the use of building land, there comes a point beyond which it no longer pays to apply labor and capital, because the return does not justify the expendi-

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ture, we have every reason to believe that the point of diminishing returns as regards physical product (in our illustration, office convenience or accommodation) has been reached and possibly passed.

Business men, of course, are interested primarily in the point of most profitable use, and we may note, in this connection, a specific instance of such interest. The American Institute of Steel Construction recently concluded a study, covering a period of two years, which was undertaken with the hope of determining the most economical height of buildings.⁸

Plans for eight buildings of varying heights were drawn and estimates of income, operating expenses and construction and land costs were made. The net return on a fifteen-story building was 6.43 per cent; on a twenty-two story structure, 7.75 per cent; thirty-story, 8.50 per cent; thirty-seven-story, 9.07 per cent; fifty-story, 9.87 per cent; sixty-three-story, 10.25 per cent, and on a seventy-five-story building the return began its decline, going down to 10.06 per cent. These estimates were based on structures constructed on land valued at \$200 a square foot.

The point of most profitable use varies, naturally, with the value of land, which is a reflection of its relative scarcity. Though a building sixty-three stories in height is the most economical when land is worth \$200 a square foot, the maximum economic return is secured from a seventy-five-story building if the value of land is \$400 a square foot. The study shows that, with land at this latter figure, the net return from a building would disappear entirely when 131 stories were reached.

Diminishing Returns in the Extensive Use of Building Land.—We have seen that diminishing returns may be found in both intensive and extensive agriculture. They are apparent, also, in the intensive and extensive use of building land since the land which is best for building purposes, like that which is best for farming, is the first to engage the attention of enterprisers. In agriculture, the most fertile land is usually thought of as "best," but in the case of building land the most important consideration is location. Because diminishing returns are met with in the intensive use of a given piece of land that is favorably located,

⁸ From the *New York Times*, September 22, 1929.

there comes a time when it pays better to spread out to building plots which are less satisfactorily situated than to keep adding labor and capital to the very limited quantity of land that is ideal for building purposes. The result is diminishing returns in the extensive as well as intensive use of building sites.

THE LAW OF VARIABLE PROPORTIONS

To the earlier economists the phenomenon of diminishing returns appeared to relate only to land. It has remained for present-day students of economics to show that the principle has a much wider application than was originally supposed. It is now recognized that labor and capital, as well as land, are subject to diminishing returns, and the economic statement setting forth this fact is known as the Law of Variable Proportions.⁶

Statement of the Law.—Following is a statement of the Law of Variable Proportions: "In a period during which there are no changes in the methods of production, if successive units of one or more productive factors be used in conjunction with a fixed quantity of any other factor, then, after a certain point has been reached, each additional unit of the variable factor or factors will add to the *total product* a lesser amount of product than was added by the preceding unit."

This law is in fact merely a modification of the Law of Diminishing Returns, and it says, in effect, that if variable quantities of land and labor are used in combination with a fixed amount of capital, or variable quantities of land and capital are employed with a given amount of labor, then diminishing returns will eventually appear just as they appear in the case of long-continued applications of capital and labor to a fixed quantity of land.

The Effects of Changed Proportions.—Once the Law of Diminishing Returns is thoroughly understood, it becomes evident that diminishing returns are attributable to changes in the

⁶ It is called, also, the Law of Diminishing Productivity and the Law of Proportionality. The latter name is that favored by Professor Carver, who has described the principle and its application at considerable length. See T. N. Carver, *The Distribution of Wealth*, Chapter 2, New York: The Macmillan Co., 1913; also, by the same author, *Essays in Social Justice*, Chapter 7, Cambridge, Massachusetts: Harvard University Press, 1922.

proportions of the several productive agents which occur whenever an addition is made to the quantity of the variable factors in use. Now these proportions change no less certainly when either capital or labor is the fixed factor, than when it is the quantity of land which remains unaltered. If one productive agent is very scarce and therefore expensive, and, as a consequence, the more plentiful factors are used in increasingly large amounts while the scarce agent is held constant, the proportion of each factor to the other factors has obviously been changed. The inevitable result, after a certain point has been reached, is diminishing returns. We have seen how this change in the proportions of the agents acts when land is the scarce factor, bringing an increase in product *per unit of land*, but a decrease per unit of capital and labor, the more abundant factors.

Variable Proportions in Agriculture.—If capital is the scarce, or fixed factor, and increasing quantities of land and labor are used in connection with it, then, after a time, diminishing returns will again be experienced, with the product *per unit of capital* steadily increasing (since *total product* increases while capital remains constant), but the product per unit of land and labor diminishing. If, for example, land and labor (being abundant) are cheap, and capital (being scarce) is expensive, a farmer might find it profitable to use more and more land and labor in connection with a fixed quantity of capital.

This would mean, in the case of a corn crop, planting more acres in corn but cultivating less often with machinery, since farming implements (being capital) would be definitely limited in quantity and if employed on both old and new fields could not be used on each acre as intensively as before. An abundance of hand labor, for seeding, stone-picking, and so on, would help to overcome the shortage of capital; but the arrangement would certainly in time bring diminishing returns *per unit of land and labor*, though an increase in total product. If the variable factors were sufficiently cheap, it might pay the farmer to carry cultivation far beyond the point of diminishing returns.

In like manner, if labor were very scarce and land and capital were abundant, it might easily pay the agricultural enterpriser to change the proportions of his business arrangement, economizing

on labor and being more generous in the use of acres and machinery. This policy, likewise, would lead to diminishing returns, with but a small return in product for each additional unit of land and capital employed, but it would result in a greater return per unit of labor, the scarce factor. Agriculture of this type is common in the so-called "corn belt" and "wheat belt" of the United States, where a few farm hands, with the most modern agricultural machinery, cultivate hundreds and even thousands of acres of land.

Variable Proportions in Manufacture.—The possibilities of using variable proportions might be shown in almost any form of business enterprise, but one further illustration, taken from the field of manufacturing, will be sufficient for our purposes.

We have already seen that, in the case of an office building, the use of additional quantities of labor and capital on a fixed amount of land brings diminishing returns. This is true, also, in factory construction, since here, as in the case of office buildings, increased height involves higher costs of construction and higher operating expenses. Here, then, is an instance of diminishing returns in manufacture, when land is the scarce factor and is therefore used in limited quantity.

But if land and labor are both plentiful, while there is a scarcity of capital, the intelligent manufacturer will employ capital but sparingly and at the same time will use large quantities of the other factors. Under these circumstances, the factory building may be made to cover a large area, but reach the height of only a floor or two, instead of three or four. Workers, too, will probably be hired in large numbers, to assist those who are operating machines and using tools, so that all capital may be made to perform maximum service. The result will be a large product *per unit of capital*, but diminishing returns as regards one or both of the other factors.

The manufacturer, like the farmer, will economize in the use of workers, if labor chances to be the scarce factor. This condition would indicate the desirability, from the point of view of *net financial return*, of employing large quantities of capital and spreading out over a considerable amount of land. This would mean, of course, the use of the latest and best labor-saving de-

vices, so that a very little of the expensive factor, labor, could be made to go a long way in the manufacturing process. The effect of this arrangement of the productive factors would be a large product *per unit of labor*, but diminishing returns so far as units of land and capital are concerned.

DIMINISHING RETURNS AND COSTS OF PRODUCTION

The Law of Variable Proportions, as we have seen, is simply an extension of the Law of Diminishing Returns. It points out that diminishing returns may occur whenever there is a "fixed" factor of production, whether that factor be land, labor, or capital.

The Element of Scarcity.—In describing the workings of diminishing returns, we have sought to emphasize the fact of scarcity, for it is only because of the scarcity of certain productive agents that the phenomenon of diminishing returns has practical significance. If none of the factors of production were scarce the business man would have no reason to economize in their use, and he would certainly not endure diminishing returns when he might easily avoid them by combining advantageously the equally abundant factors. But the truth of the matter is that all productive agents are sufficiently scarce to command a price, and some are at times so limited in quantity as to command a very high price.

The use of large quantities of expensive factors runs up the business man's costs of production, and these in turn are reflected in the prices that he charges for the commodities or services in question. It is a desire to keep down expenses that prompts the enterpriser to economize in the use of scarce, costly factors of production. Though this economy, if long practiced, results inevitably in diminishing returns, it may at the same time be "good business" on the part of the enterpriser. This fact is demonstrated conclusively in our example of wheat-growing, which showed that it sometimes pays to apply the plentiful, cheap agents of production to the scarce factor, long after the "point of diminishing returns" has been passed. The stopping point for the business man is, of course, the "point of most profitable use."

The Point of "Ideal Proportions."—Every farm, factory, or store is a business unit, in the operation of which land, labor, and

capital are employed in combination. It is the task of the employer, first, to discover the proportions in which these productive agents may best be employed, and then to see to it that they are used in these proportions, and in no others. The object is not to secure the largest possible product per unit of land, per unit of labor, or per unit of capital, but the greatest total product in proportion to total costs of production. Progressive business men are seeking all the time to find the best possible (that is, most profitable) combinations of land, labor, and capital. There may arise, for example, the question as to whether to buy a new labor-saving machine and lay off workers; that is, increase the amount of capital and reduce the quantity of labor. Or, again, the problem may bear upon the proportion of capital to land. Is it better [the enterpriser may ask himself] to build high or low, using less land and more capital, or more land and less capital, as the case may be?

Questions such as these cannot be answered offhand. The most advantageous combination of the factors will depend upon their relative cost. Expensive agents will ordinarily be used sparingly; cheap factors will be employed with a freer hand. In the end, however, it will be most profitable to add units of each factor up to the point at which the contribution of each unit to the total product will exactly equal the cost of the unit. For if, to quote Professor Carver,⁷ "by increasing any factor there would be added to the total product of the establishment more than enough to pay the cost of increasing that factor, obviously it would pay to increase it. Or if, by decreasing such a factor, more would be saved in its cost than would be lost in the diminution of the total product, it would pay to decrease it."

Diminishing Returns and the Supply of Land.—Diminishing returns have no significance apart from a scarcity of productive factors, and all of the factors of production are more or less scarce. It should be noted, however, that the characteristic of scarcity applies with particular force to land. Capital is added to continually through the savings of members of society, and the labor supply is being steadily increased by growth in popula-

tion. But the supply of land is, in a very real sense, fixed, and in the very nature of things must forever remain fixed.

From the point of view of the business man this distinction is not important. He thinks of land, as he thinks of labor and capital, as a productive agent for which he must pay a price, which will enter, together with other expenses, into his costs of production. For the enterpriser, then, land is in precisely the same position as the other agents of production.

But for the student of economics, who looks at the situation from the social point of view, the absolute fixity of the quantity of land does make a difference. It has a distinct bearing upon the distribution of income, as will be indicated in a later chapter. And it may eventually prove to be the "limiting factor" in production, which will set a point beyond which world population cannot safely go. It was recognition of the inability of man to increase the supply of land that caused Malthus to sound a note of warning, and led the earlier economists to regard diminishing returns as relating peculiarly to applications of units of labor and capital to a fixed quantity of land.

Law of Diminishing Returns: In a period during which there are no changes in the methods of production, if successive units of capital or labor (or both) be applied to land, then, after a certain point has been reached, each additional unit of these productive agents will add to the total product a lesser amount of product than was added by the preceding unit.

Law of Variable Proportions: In a period during which there are no changes in the methods of production, if successive units of one or more productive factors be used in conjunction with a fixed quantity of any other factor, then, after a certain point has been reached, each additional unit of the variable factor or factors will add to the total product a lesser amount of product than was added by the preceding unit.

⁷ *The Distribution of Wealth*, pp. 89, 90.

CHAPTER VI

THE ORGANIZATION OF MODERN BUSINESS

THE business enterpriser has already been referred to as a vital factor in production. It is he who is the responsible head of a business organization. It is he who determines policies and assumes the risks of the enterprise. He is the leader in the undertaking, and, if we may believe an observer who is well informed on managerial problems, "Wise leadership is more essential to successful operation than extensive organization or perfect equipment."¹ For the enterpriser, more than any other, is in a position to make or break the business, since in his decisions may lie the difference between success and failure.

A successful enterpriser is usually a man of imagination, who sees in some branch of production an opportunity for development which has not yet been fully realized. He may be a Henry Ford who dreams of cheap transportation for the masses, or a John Wanamaker who believes that a one-price system and a guaranty of complete satisfaction to the customer will be appreciated by the public. In whatever field of activity he engages, he visualizes the possibility of rendering a service which will bring gains to himself, and then gets together the productive factors necessary to the enterprise and sets them to work.

Frequently the business enterpriser conducts his business under his sole responsibility, but quite as often, in our modern economic life, the form of business organization is a partnership or a corporation.

THE SINGLE ENTERPRISER

When one individual undertakes the responsibility for the conduct of the enterprise he is known as a *single enterpriser*.

¹ L. P. Alford, *Laws of Management*, p. 49. New York: Ronald Press, 1928.

This form of organization is naturally most common in small businesses which require only a limited amount of capital. The average farmer himself, for example, bears the burdens of managing his business, though there are a number of instances of farming carried on by partnerships or corporations.² Most professional men are single enterprisers; that is to say, they practice medicine, or law, or some other profession, without sharing the responsibilities of the enterprise with other persons. The corner grocer is not uncommonly a single enterpriser, although more and more the corporate form of organization is being adopted in this field. There have been in the past and still are many manufacturers who are sole owners and managers of their respective businesses; but these usually, though not always, are enterprisers on a relatively small scale.

Advantages of the One-Man Business.—Certain advantages attach to this type of business organization. When a man is in business for himself, he is very likely to give his best efforts to the advancement of the enterprise. He gets considerable pleasure at times from the knowledge that he is in business for himself, and enjoys as an enterpriser a freedom of action which is not experienced by an employee. Indeed, it would not be difficult to find single enterprisers, particularly small shopkeepers and farmers, who could earn somewhat more money by selling their services to employers who conduct larger units of business. But the independence which goes with being in business for one's self brings a satisfaction for which many men are willing to pay in the form of smaller income.

Objections to this Type of Organization.—There are, on the other hand, certain disadvantages to this type of organization. The amount of capital which a single enterpriser is able to get together for the operation of his business is sometimes very restricted; and it is not always possible for him to expand the enterprise as rapidly as he might like, because of limited funds. Though a single enterpriser may be master of his trade or profession,

² An interesting account of a large farming project conducted under the corporate form of organization is given in Department Circular No. 351 of the United States Department of Agriculture. The circular is entitled *Centralized Management of a Large Corporate Estate Operated by Tenants in the Wheat Belt*, and is by Walter H. Baumgartel. Washington: August, 1925.

there is a good deal to be said for specialization in management as well as in the physical operation of a plant. Two heads are often better than one, and the single enterpriser has to rely upon his own judgment, which may not always be sound.

There is the further disadvantage of "unlimited liability." If the business should prove to be a failure, and the claims of creditors be greater than the assets, the creditors would be entitled by law to force the sale of the enterpriser's personal property in order to collect their just claims. The single business man might, under these conditions, lose his home and whatever other assets he happens to have.

THE PARTNERSHIP

When two or more individuals join forces for the purpose of conducting business we have a business partnership. This partnership is based upon a written or oral contract—usually, of course, the former. A partnership ordinarily consists of few members, who are chosen for the particular contribution which each is able to make to the organization. They are sometimes chosen with the idea of increasing the amount of capital which can be used to advantage in the business. In the partnership, as in the case of the single enterpriser, there is the incentive to work hard for the success of the business, since the several partners in so doing are working at the same time for their own advantage.

Some Disadvantages of the Partnership.—The partners usually, though not always, take an active part in the management of the enterprise, and receive salaries for their personal services, as well as a return on the capital which each has invested. Like the single enterpriser, they are subject to demands upon their personal fortunes in the case of business failure, unless they have taken out a "limited" form of partnership, which is due warning to creditors that the liability of certain members of the partnership (though not of all members) is no greater than the amount which they have actually invested in the business. Each partner, then, is ordinarily responsible for the actions of his business associates.

A partnership is dissolved on the death of one of the contract-

ing parties, and this fact is thought by some to be a serious disadvantage. There is the further possibility that partners may fail to agree upon policies to be adopted by the concern, whereas a single enterpriser suffers no handicap of this kind. Or, again, the partners may not be able to reach their decisions in important matters as promptly as a single enterpriser; and delays in determining courses of action in business are sometimes disastrous.

Example of a Successful Partnership.—The experience of the Colonial Printing Company, operating in a middle-sized Pennsylvania city, illustrates the possibilities of the partnership form of organization for a small business. It happens that three young men who were working for a printing concern decided that they would like to go into business for themselves. The trio consisted of George J. Harness,³ the business manager of the older concern; James Sullivan, who had charge of the typesetters; and John Williams, an expert pressman. It will be noted that each of these men had qualities which made him valuable to the new business, for Mr. Harness was able to take care of the office details of the new printing company, making estimates on printing jobs, taking care of the finances, and so on; Mr. Sullivan directed the work of setting up the various jobs in attractive type form; and Mr. Williams was able to see to it that the actual printing was well done.

In addition to these contributions to the organization, each of the three men was able to get together a small amount of capital, so that the final result was an organization with sufficient working capital and such types of ability as would enable the business to be conducted satisfactorily. The success of this concern, which now has some hundreds of employees, is evidence that the partnership form of business organization, if adopted intelligently, may be exceedingly advantageous.

THE CORPORATION

Most large concerns, and many small ones, have adopted the corporate form of business organization instead of that of the single enterpriser or the partnership.

³ The illustration is genuine, though the names here used are fictitious.

A corporation is an artificial person, created or authorized by the law for some particular purpose or purposes. . . . [The] members, or stockholders, are not the corporation. They compose it, but the corporation has a name, an entity, and an existence of its own, entirely apart and distinct from that of these members.⁴

Great Size of Some Corporations.—The larger number of participants in ownership means ordinarily that much larger funds are available in a corporation, for the purchase of capital, than in any other form of organization, so that business may be conducted on a huge scale. The owners of the business are called stockholders, and in many instances the shares of stock are sold to the general public. Thus, an individual may become part owner of the Pennsylvania Railroad Company or the United States Steel Corporation, through the purchase of one or more shares of stock.

Ready Transfer of Ownership and Limited Liability.—This arrangement not only brings together great quantities of capital (buildings, machinery, and other equipment) under single management, but makes it easy also for the average person to convert his surplus income into investments. The ease with which one may become a stockholder is matched only by the readiness with which he may sell his holdings and withdraw if necessity arises; for shares of stocks are readily transferable. A further advantage of the corporation is the fact that liability of the stockholders is limited to their actual investment in the business, so that there is no danger of the loss of other property belonging to a stockholder, through a failure of the corporation.

In the case of national banks, it should be noted, the stockholder is not only personally liable to the extent of his original investment, but may be called upon to provide, in addition, from his personal property, an amount equal to his investment in bank stock, to meet the demands of creditors. His personal liability is thus twice the amount of his actual investment.

Permanence of Corporate Existence.—There is also the fact that the corporation continues to operate regardless of the survival of its individual members. A single stockholder, or a dozen

⁴ Thomas Conyngton and Louis O. Bergh, *Business Law*, p. 231. New York: Ronald Press, 1926.

stockholders, may die without affecting seriously the progress of the organization. Another fact worth noting is the ability of the great corporation to secure the very highest type of managerial ability, because, by reason of large resources and the volume of business which is being transacted, it is able to pay handsome salaries to exceptionally able men.

The Bondholders.—The corporation is financed by both bondholders and stockholders. The *bondholders* are really simply individuals who have loaned capital to the corporation. In exchange they receive bonds which have back of them, as security, the concrete physical property of the corporation. For their loans they are guaranteed a definite rate of interest each year, and in the event of bankruptcy they may have the physical property of the corporation sold in order to meet their demands. They have, therefore, a high degree of security of investment, but on this very account the rate of return on their capital is likely to be rather low.

The Stockholders.—The actual owners of the corporation are *stockholders*, and of these there are several kinds. We shall note, in our present treatment, only two classes of stockholders—those who have invested in preferred stock, and those who own common stock. The holders of preferred stock are promised a fixed return in the form of dividends, provided the earnings of the business permit the payment of dividends. This return, it should be noted, is not guaranteed, whereas the return to bondholders is definitely assured, so long as the corporation remains solvent. Preferred stockholders, therefore, have less security so far as both principal and income are concerned; but if the profits are large enough to make dividends possible, these stockholders are likely to receive a higher rate of interest than the bondholders.

Control of the Corporation.—Though preferred stockholders, like common stockholders, are owners of the business, they frequently do not have voting power. The holders of common stock, on the other hand, usually do have a vote in the election of a board of directors. The common stockholders are not paid any return on their investment until bondholders and preferred stockholders have been taken care of. They, therefore, take considerable risk, and when they do receive dividends these divi-

dends are great or small depending upon the success of the business. It is proper to say of common stockholders that they have little or no assurance of dividends, but sometimes the return on their investments is large—much larger, indeed, than the return to bondholders or preferred stockholders in the same corporation.

The common stockholders ordinarily have a vote, as has already been indicated, but of recent years there have been large issues of stock which carries with it no voting privileges. The issuance of stock of this kind has been severely criticized by certain economists.⁸ The point is that the holders of non-voting stock are risking their capital in an enterprise which, because they have no vote, they are powerless to control. This arrangement places the control of some corporations in the hands of individuals who own considerably less than the majority of the stock.

The Delegation of Authority.—The owners of the corporation, that is, the stockholders, delegate to the board of directors the right to determine how the business shall be conducted. This board is elected by the stockholders, and is therefore responsible to them. In order to facilitate its work, the board of directors frequently acts through an executive committee. The executive committee, in turn, delegates authority to a general manager (who is often president of the corporation and chairman of the board of directors), under whom various departments of the business are managed, each, of course, with its respective executive in charge. In many instances, the president is clothed with vast powers, and is permitted, in emergencies, to act without specific authorization from the board of directors. The separation of direct control from ownership is one of the outstanding characteristics of the corporation.

Stock Dividends.—Sometimes, when the condition of a corporation fully justifies the payment of dividends, stock dividends are issued in place of cash. A stock dividend consists of additional shares of stock issued without charge to those who are already stockholders, in proportion to their holdings at the time. This plan is frequently adopted in order that the earnings may remain

⁸ See, in this connection, William Z. Ripley, *Main Street and Wall Street*. Boston: Little, Brown & Co., 1927.

in the business and go to purchase new buildings and other equipment, and thus increase the size of the business. Or it may be that old equipment has increased in value to such extent that new stock may be issued without danger of overcapitalization. The United States Steel Corporation, for example, issued a 40 per cent stock dividend on all outstanding common stock a few years ago. This meant that every person holding ten shares of common stock received without charge four additional shares.

The motives behind the issuance of stock dividends are not always apparent, but it is safe to say that in some cases the purpose is to reap large profits without those large profits being noticed by the public. Let us suppose that a concern with outstanding stock amounting to \$500,000 is regularly making profits sufficiently large to justify a 20 per cent dividend on this stock. It may be deemed unwise to pay so large a dividend since it would almost certainly subject the corporation to criticism; but if, through the issuance of a stock dividend, the outstanding stock is increased to \$1,000,000, then these profits may be distributed with the appearance of paying only 10 per cent return to stockholders.

It would seem that, in this way, the public might be deluded into thinking that a corporation was making only a fair profit when its profits in reality were excessive. If the corporation is enjoying the benefits of a protective tariff, or some other special privilege, it would be distinctly unwise to make public the fact that profits are large, since this knowledge might result in a lessening of the favors which the concern now enjoys. In the case of public utilities, such as railways, electric power companies, and other organizations whose rates are controlled by public commissions, the concealment of unusual profits might serve as a means of warding off adverse criticism and avoiding opposition to higher future rates. Indeed, the profits providing a good return on a reasonable capitalization might be made to appear abnormally low through the issuance of stock dividends, and this situation might easily be made the basis of a plea for an increase in rates.

Moreover, in some lines of business, the appearance of exceptionally high profits might invite unwelcome competition. In the

attempt to ward off competition, profits may be made to seem smaller than they really are, by paying dividends partly in cash and partly in stock. Stock dividends possess these advantages, if there is a desire to conceal profits. In the first place, stock dividends are but little understood, and consequently do not attract much attention from the general public; and, secondly, the existence of this additional stock makes it possible, in future, to pass out large earnings while the stock seems to be paying only a normal return.

Possibility of Predatory Control.—There is also, under the corporate form of organization, the possibility that small stockholders may suffer at the hands of unscrupulous owners of large blocks of stock. There have been instances of predatory control by a few large stockholders, who succeeded in making the business appear so unprofitable that small stockholders, fearful that the concern was going to smash, were glad to sell out even at considerable loss. Later developments would show that the pessimistic rumors that had been set afloat were not justified, that the business was on a thoroughly sound and profitable basis, and that the small holders of stock had been sacrificed in order to make fortunes for those in control. Manipulation of this kind often endangers the interests of those least able to bear financial loss, and may result in genuine hardship.

Loss of Employer-Employee Contacts.—Another disadvantage of large corporations, which applies to large-scale production in general, is the loss of the personal touch between employers and employees. When business is conducted in small units, it is quite possible for the owner of a business to know personally many, if not all, of his employees. As the business grows, and the number of workers increases, it becomes correspondingly difficult to keep track of the individual worker in the plant and to know something about his needs.

This is especially true in the corporate form of organization, since here the owners of the business are simply stockholders who are chiefly concerned with getting large returns on their investments. The average holder of Pennsylvania Railroad stock knows very little about the wages of the railroad worker, or whether his conditions of employment generally are good or

bad. In all probability the lot of mining laborers in some of our coal-mining centers would be promptly improved if the mine owners (holders of stock living in comfort in distant cities) knew from personal contact about the miners' working and living conditions. It is true, then, that the corporate form of business enterprise has played a large part in bringing about the present impersonal nature of labor relations, which has sometimes resulted in both uneconomic and unsocial conditions.

Growth of the Corporate Form of Organization.—In view of the increasing importance of the corporation in our business life, we may with profit examine some definite figures dealing with this particular point. Table II is taken from reports of the United States Department of Commerce, and the data found therein are consequently official. A study of this table shows the trend of the times in the matter of business organization. During the fifteen years between 1904 and 1919, the number of business

TABLE II: CHARACTER OF OWNERSHIP OF BUSINESS ESTABLISHMENTS IN THE UNITED STATES, CALENDAR YEARS 1904, 1909, 1914 AND 1919
(Source: Bureau of the Census, United States Department of Commerce)

Character of Ownership, and Year	Establishments		Wage Earners		Products		Added by Manufacture	
	Number	Per Cent of Total	Average Number	Per Cent of Total	Value	Per Cent of Total	Value	Per Cent of Total
Individual:					Dollars		Dollars	
1904.....	113,946	52.7	755,923	13.8	1,702,830,644	11.5	824,292,887	13.1
1909.....	140,605	52.4	804,883	12.2	2,042,061,500	9.9	968,824,072	11.4
1914.....	142,436	51.6	707,568	10.1	1,925,518,298	7.9	903,554,881	9.1
1919.....	138,112	47.6	623,468	6.9	3,536,321,836	5.7	1,555,136,394	6.2
Corporation:								
1904.....	51,097	23.6	3,862,698	70.6	10,904,069,307	73.7	4,526,055,153	71.9
1909.....	69,501	25.9	5,002,393	75.6	16,341,116,634	79.0	6,582,207,117	77.2
1914.....	78,151	28.3	5,649,891	80.3	20,177,084,844	83.2	8,088,691,744	81.9
1919.....	91,517	31.5	7,875,133	86.6	54,744,392,855	87.7	21,817,546,565	87.0
Other:								
1904.....	51,137	23.7	849,762	15.5	2,187,002,632	14.8	943,346,713	15.0
1909.....	58,185	21.7	807,770	12.2	2,288,873,736	11.1	978,229,803	11.5
1914.....	55,204	20.0	676,788	9.7	2,143,831,582	8.8	886,129,268	9.0
1919.....	60,476	20.8	597,771	6.6	4,137,364,082	6.6	1,669,015,531	6.7

establishments conducted by individual owners decreased from 52.7 per cent to 47.6 per cent of the total for the United States. The number of wage earners employed by such business men declined from 13.8 per cent to 6.9 per cent of the total workers in this country. In value of product turned out by establishments of this kind, there was a decrease from 11.5 per cent to 5.7 per cent; and, finally, in the amount of value added to the goods in process of manufacture, the importance of concerns conducted by individual enterprisers dropped from 13.1 per cent to 6.2 per cent of the total for the United States.

The figures for businesses organized on the corporate basis have consistently shown increases. In number of establishments there has been an increase from 23.6 per cent to 31.5 per cent. In wage earners, the 70.6 per cent of 1904 became 86.6 per cent in 1919. In 1904, the value of products made by corporations was 73.7 per cent of the total value of products manufactured in the United States, but by 1919 it had reached 87.7 per cent. The value added by manufacture does not vary greatly from these latter figures; corporations were responsible for 71.9 per cent of this value in 1904 and 87 per cent in 1919. Business organizations other than corporations and individual ownerships are also included in Table II, but they need not be enlarged upon here, for their importance, like that of the individual enterpriser, has consistently declined in this fifteen-year period.

Since, in the United States, we now have under the corporate form of organization about 85 per cent of our wage earners, producing (in conjunction with land, capital and management) about 85 per cent of our manufactured products, and adding to the raw material in the process of manufacture about 85 per cent of all value thus added in the American industrial world, it is quite easy to see the popularity and tremendous significance of this form of business management.

The Corporation in Important Industries.—The facts given above relate to production in general in the United States, but an examination of a number of individual industries shows that the large businesses in particular are usually conducted under corporate management. Doubtless the explanation, in many instances at least, lies in the facility with which the corporation can amass

tremendous quantities of capital. Large-scale operations (the nature of which we shall discuss in the next chapter) usually require large amounts of capital. The corporation is the type of business organization which, aside from public ownership, is best fitted to accumulate capital in great quantities.

Consequently we find, in the thirteen industries listed in Table III, a very pronounced preference for the corporate form of

TABLE III: ESTABLISHMENTS UNDER CORPORATE OWNERSHIP IN 13 LARGE-SCALE INDUSTRIES, 1919

(Source: Bureau of the Census, United States Department of Commerce)

Industry	Total Number of Establishments	Operated by Corporations	
		Number	Per Cent of Total
Sugar refining.....	20	17	85.0
Boots and shoes, rubber.....	25	24	96.0
Smelting and refining, copper.....	34	34	100.0
Iron and steel, steel works and rolling mills.....	500	481	96.2
Shipbuilding, steel.....	162	148	91.4
Belting and hose, rubber.....	15	15	100.0
Smelting and refining, lead.....	15	14	96.0
Locomotives.....	17	16	94.1
Smelting and refining, zinc.....	39	39	100.0
Cars, electric-railroad.....	7	6	85.7
Iron and steel, blast furnaces.....	195	187	95.9
Ordnance and accessories.....	26	25	96.2
Cars, steam-railroad.....	99	98	99.0

organization. In three of these industries (copper smelting and refining, the manufacture of rubber belting and hose, and zinc smelting and refining), all of the establishments are under corporate ownership. In only two of the thirteen industries does the percentage of plants operated by corporations fall below 90 per cent. In nine of the thirteen cases cited, the figure is higher than 95 per cent. So much for the importance of the corporation, as measured by the proportion of corporate-owned establishments in these large-scale industries.

If we take a larger view of industry, we discover that there are many lines of manufacture in which the percentage of plants

controlled by corporations is quite low. But, despite this fact, the corporations engaged in any given line of industry usually carry on most of the activity in that industry. Only 8 per cent of tobacco manufacturing plants are corporate-owned, but these few produce more than 80 per cent of the manufactured tobacco, cigars, and cigarettes made in this country. Twenty-five per cent of our flour-milling establishments are corporations, and they manufacture 83.5 per cent of the total output of all flour mills in the United States.

The figures do not always emphasize so strongly the predominance of the corporation in American industry, but the samples given are fairly typical. They help to explain the fact, already noted, that slightly more than 85 per cent of the total output of manufacturing concerns in the country, as judged by value of product, is attributable to establishments operating under the corporate form of organization.

THE COOPERATIVE ASSOCIATION

Up to this point, we have been examining business organization with particular reference to the question of ownership. We shall now give some little attention to the cooperative association and public ownership; and here, it will be noted, the emphasis is upon *purpose* rather than upon *ownership*. Single enterprisers, partnerships, and corporations operate chiefly for the purpose of making profits for the owners of the business. Cooperative associations and public ownership aim to provide commodities or services at cost to all who are members of the cooperative or of the "public," as the case may be.

In some instances, it must be added, cooperative associations deal with the general public as well as with their own members. In their dealings with the public, the cooperatives realize gains which are distributed among the members of the cooperatives. To the extent to which this is done, cooperatives do not, of course, differ in purpose from the other forms of business control which we have examined. Their present importance is but slight, in comparison with that of single enterprisers, partnerships, and corporations; but they have gained sufficient headway in Europe

(and, to a lesser degree, in this country) to justify a few pages of description.

Theory of the Cooperative Society.—The distinguishing feature of the cooperative organization is the democratic operation of an enterprise for the benefit of the persons who transact business with the organization. To insure democratic control, the cooperative grants but one vote to each member, regardless of his capital investment in the association, and frequently the capital holdings of members are limited by specific provisions of the by-laws. Since the association is conducted for the benefit of those who have direct business relations with it, the service performed by the cooperative is rendered at cost, each member paying for the service which he receives.

Form of the Cooperative.—Some cooperative associations require so little operating capital that the membership fees of ten or twenty dollars meet their financial requirements. Others, again, purchase considerable equipment, and secure their funds by organizing as corporations and selling stock. In the former case, the organization is somewhat similar to a large partnership, with, in some instances, a limited liability granted by law. When a charter is secured, and stock sold, the cooperative is not unlike the usual corporation, except that it is not operated primarily as a profit-making enterprise. Indeed, in most instances, the dividends paid on cooperative stock are limited to a very moderate return (only slightly, if any, greater than the current rate of interest), with the definite purpose of avoiding the payment of what might be considered profits.

Scope of Operations.—Cooperative associations have been least successful when operating in the field of production (using the term in its narrow sense, as referring to the creation of form utilities). A number of attempts have been made to carry on manufacture or agriculture under the cooperative form of organization, but almost always with disastrous results. The reasons for failure seem to be, in most instances, the inability of the members of the association to find among their number persons able to perform efficiently the duties of management, and an unwillingness to bring in high-salaried executives from the outside.

The term "producers' cooperatives" is often heard, but in most

cases it has been applied to societies that engage chiefly in the *marketing* of products. It is true that grain cooperatives may perform the service of storage as well as sale; dairying cooperatives may convert raw material into butter and cheese; and fruit growers' cooperatives sometimes operate canneries, in order to make use of imperfect or undersized fruit. But these functions, as a rule, are incidental to the larger function of finding satisfactory markets for the goods, and disposing of them at good prices.

"Consumers' cooperatives" are societies which aim to purchase collectively the goods which they need (groceries, hardware, clothing, and so on), so that they may secure the advantages of large-scale buying and avoid paying the "middleman's profit" which ordinarily goes to the retail merchant. In the field of finance, the building and loan association provides the most conspicuous example of cooperative action. By using the savings of members of an association, and adding to them by loans made available through the financial standing of the organization, it is possible to supply funds for the construction of homes for persons of moderate means, who would otherwise probably be obliged to live throughout their lives in rented quarters.

Extent of the Cooperative Movement.—The cooperative movement has spread much more widely in European countries than in the United States. And yet, even in this country, the data relating to the movement make a brave showing. According to the Department of Agriculture, there were in the United States, in 1925, 10,803 cooperative societies for the handling and marketing of farm products. These societies included in their membership some 2,500,000 farmers. So far as marketing is concerned, cooperation has had its greatest success in the field of agriculture. Grain cooperatives head the list, with 3,338 associations; organizations dealing in dairy products total 2,197; and, to name the two next in importance, there are 1,770 cooperatives among livestock producers, and 1,237 made up of growers of fruits and vegetables.

The movement had its beginning in England, in 1844, as a buying organization, and it has been notably successful in this branch of economic life. It has found much less favor in this country, but even here it is estimated that there are at least

3,000 retail stores owned cooperatively by 500,000 persons, and doing \$100,000,000 worth of business annually. The building and loan associations, which stand out as an important agency for providing cooperative credit, now number at least 10,000 organizations and have (it is estimated) between 7,000,000 and 8,000,000 members.

Cooperative associations for marketing, purchasing, and financing, such as we have described briefly, appear to have much to offer in the way of effecting economies and thus increasing the incomes of their members. Their ability to compete with other agencies performing similar functions is an indication of effective and efficient operation. It is probable that we shall witness, in the future, a further development of the movement in this country.

PUBLIC OWNERSHIP

Public ownership has, in common with cooperation, the idea of conducting business for those directly concerned, rather than for a group of capitalists. "Those directly concerned" are usually, in the case of public ownership, most or at least a large part of the citizenry of the political unit in question. Public ownership is sometimes resorted to in order to insure that a certain necessary service will be rendered properly; and, again, it is undertaken so that the public may be able to purchase a service at cost—that is, without profit to the enterprisers. In some few cases, public ownership is undertaken with the thought of securing revenue for the government, but instances of this kind are rare.

The term "government ownership" usually brings to mind the concept of the operation of a business enterprise on a national scale. The postal service is so vital to the welfare of a people that it is usually owned and operated by the national government. About 64 per cent of the railroads of the world are now state-owned.⁶ Other phases of communication that have been taken over by some national governments are telegraph and telephone systems. Of these types of industry, only the postal service has

⁶ Emory R. Johnson and others, *Principles of Transportation*, p. 353. New York: D. Appleton and Co., 1928.

been nationalized in the United States, though during the World War the railroads of the country were placed for a time under government control.

Experience in the United States.—But on a smaller scale, public operation has found considerable expression in this country. A fair number, though of course a pronounced minority, of municipalities have found it desirable to own and operate water works, gas and electric plants, street railways, and other forms of so-called public utilities. Our public school system, with its 28,000,000 students, almost a million teachers, and an enormous capital investment, is a striking example of public ownership and operation.

It will be noted that publicly operated industries are frequently producers of services, and not of material goods to be consumed directly by the user. There are exceptions, of course. At times the industries are supported wholly through taxation, as is the case with our public schools, and the service is rendered free to all who wish to avail themselves of it. Again, prices are charged which will cover all or most of the cost of operation. In our postal service, for example, a profit is realized on the handling of sealed letters, but some kinds of mail matter (notably newspapers and magazines) are carried at a loss. Any net deficit resulting from the operation of the United States Post Office is taken care of by appropriation, and ultimately comes out of funds that have been secured through taxation.

Stand of the British Labor Party.—Public operation does not, on the whole, appear to be gaining ground. This is particularly true in this country, where individualism is decidedly more popular than collectivism. But if the British Labor Party in England should continue to increase in power, and eventually gain complete, unquestioned control of the government, it might well exert a powerful influence upon the future of government ownership and control, since this party has openly championed the nationalization of mines, electric power plants, and other public utilities which it deems essential to the welfare of the nation.

Whether a development of public operation would be desirable is a debatable question. Its advocates have shown that it offers

certain definite advantages; but, on the other hand, its enemies have demonstrated that it holds possibilities of grave abuse. The truth of the matter is that we have not as yet accumulated sufficient scientific data to justify either whole-hearted endorsement or condemnation of this form of business organization.

THE SIZE OF THE BUSINESS UNIT

BUSINESS organizations vary greatly in size as well as in form. Scattered throughout the country are thousands of very small business units, conducted in most cases by single enterprisers or by partnerships. Corporations, also, are sometimes small, but since one of the distinct advantages of the corporate form of organization is the ability to get together large quantities of capital, as was observed in the last chapter, it is not surprising that we find in the corporate form of organization a number of very large concerns.

Growth of Large-Scale Business.—Moreover, the tendency is clearly in the direction of large-scale business as opposed to business conducted in small units. Figures published by the Department of Commerce¹ indicate the growing importance of large-scale business organization. According to these figures, 2.1 per cent of all establishments in the United States, in 1914, had an annual output valued at \$1,000,000 or more. And yet these relatively few establishments employed 35.2 per cent of all wage earners, and produced 48.6 per cent of the value of all manufactured goods. Eleven years later, in 1925, business establishments with an annual output of \$1,000,000 or more constituted 5.6 per cent of the total number, employing 56.8 per cent of all wage earners and producing 67.6 per cent of value of all manufactures. When allowance has been made for changes in price levels (which are explained in a later chapter) these statistics show the growing importance of the large business unit in our present-day industrial world.

Measurement of Business Units.—Difficulties sometimes arise in connection with the measurement of business units. How shall

we know whether to classify an establishment as large or small? Is it large (1) when it employs a large number of workers, (2) when it has a high capitalization, or (3) when great value is added to raw materials in the process of manufacture? The answer often depends upon the nature of the industry under consideration, and the purpose of the inquiry. Some types of industry require many wage earners if they are to operate on a large scale; others, again, depend more extensively upon the use of machinery, and their greatness may be measured by their capitalization. And so on. The fact is that all of the measurements listed above have advantages and disadvantages, but the first and third are probably the most generally useful. Our census authorities employ all three.

A large-scale business, then, is one which measures up to any one or more of the standards that we have noted. In a practical way, there is but little difficulty in determining whether a business is large-scale or not. There can be no question that Hart, Schaffner and Marx engage in large-scale manufacturing; Sears, Roebuck and Company in large-scale merchandising; the New York Central Railroad in large-scale transportation; and J. P. Morgan and Company in large-scale finance. Examples of small-scale enterprisers in similar lines are the custom tailor in manufacturing, the corner grocer in merchandising, the independent taxicab driver in transportation, and the pawnbroker in finance. These are extreme cases chosen admittedly for the purpose of contrast, for economic principles (such as those of large-scale business) are often seen most clearly when extreme cases are cited.

Each of the great business concerns that have been named is large-scale on several counts. Indeed, if an establishment has large capital or employs a large force of workers, it almost inevitably adds greatly to the value of raw materials in the course of manufacture. Otherwise, it could scarcely afford to have a large payroll, or employ a great quantity of capital. Large-scale operation, it may be added, is often thought of as relating primarily to manufacturing, probably because it has had its greatest development in that field. But, as we have seen, there are some striking examples of large-scale business in other lines of economic activity.

¹ *Statistical Abstract of the United States*, 1928, p. 750.

ADVANTAGES OF LARGE-SCALE PRODUCTION

The steady increase in the size of business establishments in the United States is based, in large part, upon certain advantages which are enjoyed by concerns operating large-scale business enterprises. When a business, by reason of its great size, is able to effect economies which result in lowered costs of production, it may properly be called a business of large-scale production. We shall note some of the advantages enjoyed by large-scale producing units. All of these advantages, it will be noted, lead to lower costs of production.

Lower Costs of Machinery, Materials, and Power.—Large-scale production permits a concern to buy its raw materials and machinery in great quantities, and consequently at lower prices than would be quoted for small purchases of these goods. If a plant regularly takes a large part or all of the output of a producer of raw materials, the seller can afford to make substantial reductions in price. Carload lots of cotton may be purchased at a lower price per pound than single bales of cotton; and a textile mill which is large enough to use great quantities of this raw material can buy the goods at a lower figure than will be asked of small cotton-cloth manufacturers.

The large business unit has an advantage also in the purchase of power. If coal is being used as a source of power, the ability to buy it in huge quantities keeps down the price; and if electrical current or gas is utilized, the rate decreases with an increase in the quantity used.

Savings in Transportation.—A similar argument applies to the cost of transportation which must be met by a business organization. Freight rates on carload lots of goods are naturally lower than on small shipments. This advantage may be enjoyed, also, in the shipment of the finished product, for the large-scale producer is very likely to sell his product in large quantities, as well as to buy his raw materials in bulk.

Gains through Specialization.—In the following chapter, we shall examine the many and great advantages that result from specialization of labor, and shall pause here simply to note that

large-scale production makes possible a high degree of specialization. A plant with a thousand employees is much more likely to employ specialization than is a factory with only a hundred workers. It is a common saying among economists that specialization is limited by the size of the market. This means that it does not pay to specialize unless large quantities of goods can be sold. It follows, then, that specialization is limited by the amount of goods produced; and if a manufacturer is engaged in production on a large scale, he is obviously in a position to utilize the principle of specialization to a greater degree than is the manager of a small plant.

Extensive Use of Latest Machinery.—Large-scale production makes it advisable to use highly specialized machinery, to use it intensively, and oftentimes to use it in extremely large quantities. Since the indirect method of production is economical, as we saw in an earlier chapter, it follows that the more machinery used (if wisely used) the greater the economies of production. The cost of a steam shovel would be prohibitive to a small builder, but to a large contracting company the shovel is not only essential, but economical, for purposes of excavation. In like manner, large corporations (or large enterprisers of any type, for that matter) are able to take advantage of the latest mechanical developments. Indeed, they cannot afford to overlook a machine the use of which will enable them to save even the fraction of a cent on each unit of product.

Employment of Practical Experts.—Large-scale production makes possible the use of the highest types of managerial and technical skill. An executive at \$100,000 a year is out of the question for a small business, but an expert of this kind may be employed quite profitably by a great corporation whose annual output runs into millions of dollars. It is natural, therefore, that the best managers and technicians of the highest grade should be attracted to the great corporations of the country. And it is natural that these great business concerns should be willing to pay handsome salaries, because the use of high-grade employees adds but little to the cost of each unit of goods that is produced under large-scale conditions.

Utilization of By-Products.—The large producing unit is enabled to make use of by-products which are almost necessarily waste to the small establishment. Probably no better example of economy of this kind can be found than that illustrated by the utilization of by-products in the meat-packing industry. Only about one-half of the weight of a steer is converted into usable beef. Consequently, the small-town butcher finds that a large part of the animal is worthless to him. Since his business unit is so small, he cannot profitably turn the waste materials into salable by-products. The great Chicago meat packers, however, are able to use almost every part of a steer or other animal. Glue, fertilizer, soap, and buttons are a few of the hundred or more articles that can be made from the "waste materials" of a meat-packing establishment, if the plant is of sufficient size to make possible the profitable manufacture of by-products.

Experimentation and Research.—Closely related to the subject just discussed is the establishment of departments of research in large-scale businesses. Research men are employed at large salaries by some manufacturing concerns, and these men are constantly experimenting in the attempt to discover new ways of using by-products, or better methods of manufacture, which will result in a higher grade of product or lower cost of production, or both.

The application of science to industry is just in its infancy, and yet we have seen enough of its results to realize that manufacturers of steel, rubber, textiles, and many other articles cannot afford to be without an efficient corps of research men. But these men, as we have already intimated, must be of high caliber if their work is to be fruitful; and consequently they must be paid high salaries. It is only under conditions of large-scale production that business concerns are able to employ scientists of this type.

Gains in Marketing.—Finally, there is a good deal to be said for large-scale production in connection with marketing. If goods are manufactured in large quantities and at low cost of production, the selling price likewise can be low, and as a consequence it is easier to find buyers for these goods. It is possible also, in many instances, to find buyers who will purchase in large quantities. Among the economies of marketing should be mentioned

advertising. Printed matter can be produced much more cheaply in large quantities than in small lots. Advertisements in popular magazines running into thousands of dollars are within the range of the large-scale manufacturer, and are a great aid in marketing, but they are entirely outside the reach of the small producer. The actual sale of goods is more economical in large quantities than in small. If a salesman can dispose of a product in carload lots, his time is much more productive of sales than if he is selling goods manufactured in small quantities, of which each customer buys only a few dozens or a gross.

LARGE-SCALE AND SMALL-SCALE INDUSTRIES

Example of a Large-Scale Industry.—There are certain industries which lend themselves particularly well to large-scale production. One of these is the steel industry. There are many good reasons for conducting the manufacture of iron and steel on a large-scale basis. One of the most important is the tremendous outlay necessary to secure blast furnaces, steel furnaces, and other equipment. The minimum cost of a modern blast furnace, used for converting iron ore into pig iron, is something like a million dollars; and, once it is fired, the furnace must be kept in continuous operation. Likewise, the cost of open hearth furnaces for the manufacture of steel from pig iron, is very great. These are initial costs which can be met only by concerns that have access to large amounts of capital.

In steel manufacture, great quantities of heavy materials have to be transported from place to place. This is done by mechanical power, and here again there are economies in having large units in place of small units. A large electric crane, for example, can be handled by one man just as readily as a small crane. It is advantageous, also, for a steel manufacturer to take molten pig iron and make it into steel without allowing it to cool; and, again, there is an economy in fashioning the steel into finished products before it becomes completely cold. Steel makers have found it desirable, also, to use the gases from blast furnaces in operating the other branches of their works.

Fields of Large-Scale Enterprise.—It is small wonder, then, that steel mills are operated on the basis of large-scale production. Indeed, they could not be operated efficiently on any other basis. There are many other industries which, for various reasons, may properly be termed "essentially large-scale." Professor Willard L. Thorp, in a study to which we shall make frequent reference in the present chapter, has published a list of such industries.² This list is as follows:

1. Industries which require a large capital investment, particularly in plant and equipment: Sugar refining, copper smelting, steel mills.
2. Industries which are monopolies, and which have a sufficiently large market to make operation on a large scale feasible. This includes artificial monopolies, such as those based on patent rights, as well as the monopolies by nature: Public utilities, manufactured ice.
3. Industries in which a natural resource is required and in which that natural resource is limited in amount and localized in geographical distribution: The manufacture of lead and zinc products.
4. Industries in which the product is capable of standardization and particularly in which a test for quality is required: Sugar, salt, meat-packing, etc.
5. Industries in which the product is highly complex and can be constructed, therefore, only by an intricate fabricating system or a large and diversified organization: Typewriters, adding machines, textile machinery, and automobiles.
6. Industries in which the product is large in size, requiring complex equipment for construction and large capital investments: Ship-building, locomotives, ordnance.

Opportunities for Small-Scale Business.—There are some industries, however, which seem to be perfectly capable of withstanding the forward march of large-scale production; or, at least, have been able thus far to provide opportunities for those who wish to conduct business on a small scale. Agriculture is carried on, as a rule, in small units. It is a type of production in which it is difficult to use specialists, since their opportunity for work would depend upon weather conditions and other uncontrollable factors. It is, however, an industry in which ma-

² Willard L. Thorp, *The Integration of Industrial Operation*, p. 88. Washington: Government Printing Office, 1924.

chinery is coming more and more into use, and there are indications that we may see more large-scale farming in the future than in the past.

Retail merchandising is a business activity which may well be conducted on a large scale, as is apparent in our great department stores and mail-order houses. Nevertheless, the development of these large mercantile establishments has not put out of business the small shopkeeper; and it seems likely that there will always be a place for specialty shops, which combine the advantages of convenient location with prompt and expert service. Those lines of work in which there is a close relationship between the seller of a service and the customer are likely to remain, for the most part, in the field of small units. The work of the plumber, the printer, the electrician, and the paperhanger, is illustrative of types of economic activity which do not lend themselves readily to large-scale operation.

We may again quote from Professor Thorp's study, and enumerate some general types of industry which are essentially small-scale:³

1. Industries whose product cannot be standardized and establishments which attempt to make products to suit the differing tastes of consumers. Such industries produce "tailored" suits, high-grade furniture, art goods, finely bound books, etc.
2. Industries producing for a small market, such as those manufacturing artists' materials, nets and seines, models and patterns.
3. Industries in which the local market is small and whose product has a high transportation cost. In the manufacture of artificial-stone products, or bricks in many localities, the activity could never be conducted on a large scale because of the limitation of the market for its product and the expense of transportation.
4. Industries in which the material used is widely scattered and cannot be concentrated because of high transportation cost or rapid deterioration. Cheese factories and cider mills may be included in this class.
5. Industries in which skilled labor is the chief element, such as engraving, job printing, etc., whose products are really services rather than commodities.

³ *Ibid.*, p. 89.

EXPANSION OF THE BUSINESS UNIT

Large-scale production does not spring up overnight, but is usually the result of development that extends over a period of years. Business men usually deliberate long and seriously before undertaking the financial and managerial obligations that are involved in increasing the size of the business unit. In some instances a business passes, by a sort of evolutionary process, through a series of steps or stages, until it finally becomes an industrial giant. Expansion, then, may be attained through aggregation, consolidation, and integration; though, it should be added, a business may stop growing at any of these stages, and still have attained great size.

Evolution of a Shoe-Producing Concern.—A small shoe-manufacturing enterprise in New England experienced an evolution such as we have outlined. It began in a modest way, with a small factory and few employees. Gradually, however, it built up a demand for its product, and as the demand grew, additions were made to the plant and equipment, more operatives were engaged, and eventually the plant was almost four times its original size. The business had expanded through *aggregation*, by doubling and again doubling its productive capacity.

By and by, this larger plant was not able to manufacture in sufficient quantity to meet the demand for its product. There was some thought of building another factory, but the labor supply of the town was fully employed, and it seemed best to expand in another locality. Consequently, these enterprisers scoured the country round about, in search of a suitable location for a new factory, and finally solved the problem of output, at least temporarily, by buying the business of another shoe manufacturer in a near-by town. Again the enterprise had expanded, but this time by *consolidation*—the combination of two businesses of a kind.

It was now found that there was no difficulty in manufacturing in sufficient quantity to meet the demands of the trade. Indeed, the output was so great that the concern decided to establish a retail store in Boston, and thus sell directly to the consumer. Here again was expansion, but of another kind, for merchandis-

ing is a type of economic activity quite distinct in its nature from manufacturing, but carrying further the process of production. In this third case, there had been combination by *integration*.

Aggregation.—Without following further the fortunes of this particular concern, we may now examine somewhat more closely these three methods of expansion, and note one or two prominent examples of each taken from American business. Aggregation is the simplest of the three, and need not long occupy our attention. Great businesses, like great oaks, have usually had small beginnings. The business which expands through duplication of plant and equipment is a familiar sight in industrial life.

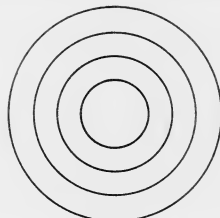


Fig. 7: AGGREGATION: Expansion by increase in size of plant, and duplication of equipment.

The Victor Talking Machine Company grew from a tiny workshop into a huge factory; the Strawbridge and Clothier Company from a small merchandising business into a great department store. But the former concern confined its operations (at least until comparatively recent years) to the manufacture of its original product; and the latter has always been a retail merchandising enterprise. The reader may readily supply for himself additional examples of the development of large-scale production through aggregation. Many concerns manifest no desire to go beyond this stage of expansion. Figure 7 represents an attempt to illustrate aggregation graphically.

Simple Consolidation (A Form of Horizontal Combination).—When two or more operating units, turning out like products,

are joined together under a central management, we have not aggregation but consolidation. In some industries, there are rather definite limits to the economies that can be realized through aggregation. It may, therefore, be wiser to operate two similar establishments than to construct a single plant of huge size. This is true in sugar refining, in the smelting of iron ore, and in certain other lines of manufacture. If, then, with the size of the establishment limited by the nature of the industry, there is a desire for further expansion, the logical next step is the purchase or construction of another plant. Because these several plants are on the same industrial level, manufacturing uniform products, this type of centralized control is frequently called *horizontal combination*.

Industrial establishments are frequently placed in particular localities because of special advantages in the way of raw mate-



Fig. 8: SIMPLE CONSOLIDATION (A form of Horizontal Combination): Expansion by grouping, under one management, two or more establishments making uniform products.

rials, labor supply or markets. Advantages such as these may lead to the operation of a number of plants of moderate size, rather than one very large establishment; that is, consolidation, instead of aggregation, is likely to result. Cheese factories, in order to secure raw milk cheaply, may profitably be scattered throughout a dairying region; silk mills of a single concern have been located in different cities in order to discourage concerted action by the workers; and brickyards are normally placed fairly near the prospective purchasers of the product. In each of the instances mentioned, however, unified control of a number of establishments may result in some of the economies of large-scale production. If so, consolidation is likely to take place.

Complex Consolidation (A Form of Horizontal Combination).—The examples thus far given are of simple consolidation. But consolidation, or horizontal combination, is sometimes com-

plex. That is to say, instead of the several consolidated units manufacturing uniform products, they may engage in manufacture of different kinds. In some instances, there is an obvious relationship between the several products. When two or three articles, such as butter, cheese, and ice cream, are made from the same basic material, the situation may lead to complex horizontal combination. The combination is "complex," because the products turned out are not uniform; and it is "horizontal," because manufacture does not take place in "stages" (which, as we shall see later, is the characteristic of integration, or vertical combination), each stage of operation tending to advance the product toward its finished state.

A few more illustrations of complex consolidation may be given. "A large bakery operates also a feed-mill, in this way utiliz-



Fig. 9: COMPLEX CONSOLIDATION (A form of Horizontal Combination): Expansion by grouping, under one management, two or more establishments making unlike products.

ing the stale and faulty products not sold."⁴ A canning factory manufactures its own tin cans in a separate factory. Sometimes the connection between the articles produced seems rather remote. Professor Thorp tells of one concern that manufactures, in separate factories, billiard tables and phonographs; another, pianos and candy; and a third, mousetraps and silverware. Usually, however, a reasonable explanation of such consolidations can be found if the history of the enterprises is investigated. Simple and complex consolidation are shown graphically in Figures 8 and 9.

Integration (Vertical Combination).—Integration, which is also known as vertical combination, consists of the concentration, under one central office, of two or more manufacturing units operating on different stages, or levels, of production. The many industrial interests of Henry Ford provide an excellent illustration of the extent to which integration may be carried on in present-

⁴ Willard L. Thorp, *The Integration of Industrial Operation*, p. 195.

day business. Following is a list of industries operated by the Ford interests, all of which are said to contribute in some way to the manufacture of Ford automobiles:⁵

Acetone	Farming and stock raising	Motion pictures
Acroplanes	Fertilizer	Paper
Artificial leather	Filtered water	Photography
Automobiles	Flax growing	Printing
Automobile bodies	Flour	Products of hydro-electric power
Batteries	Fordite	Radio
Benzol	Forgings	Railroads
Body parts	Foundry	Sawmills
By-products	Generators	Small tools
Car trucks	Glass manufacture	Steam turbines
Cement	Iron mining	Steel manufacture
Coal mining	Johansen gages	Toolmaking
Coke manufacturing	Lead mining	Tractors
Copper wire	Logging	Wood distillation
Cotton, woolen, linen	Machinery manufacture	
Dry kilns		
Electric locomotives		
Electric power		

We shall not attempt to show in detail the part played by each of these forty-seven industries in the production of automobiles. But even a casual inspection of this list indicates the close connection of certain industries, and their probable contribution to the chief Ford product. Iron mining provides one type of raw material, logging and sawmills a second, and flax-growing a third. These several items make progress through steel works, body plants, and textile mills, respectively. Power is an essential factor in manufacturing; hence the production of electric power and steam turbines. Coal is required for generating steam and is also the raw material for coke, which, in turn, is necessary in the smelting of iron ore. Transportation is carried on almost continuously in the Ford organization, and this fact accounts for the inclusion, in the Ford list, of electric locomotives and railroads.

A close familiarity with the Ford operations would doubtless enable one to find the specific places in the organization into

⁵ L. P. Alford, *Laws of Management*, p. 60.

which most of these forty-seven industries fit, and to explain the relationship of each to the whole. But it is probable that some

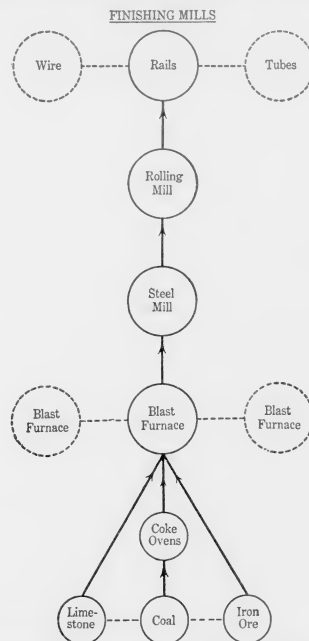


Fig. 10: INTEGRATION (Vertical Combination): Expansion by grouping, under one management, two or more establishments making successive products. (Integration and Consolidation may go together, as is indicated by the dotted lines in the diagram.)

one or more of the forty-seven would not fulfill the requirements of integration, namely, that they represent a stage, or level, either

behind or in advance of some other stage, and aid definitely in furthering the production of the finished article. The manufacture of by-products, to name but a single instance, is very likely to be purely incidental, a type of activity carried on in order to avoid waste, but not contributing to the manufacture of automobiles. A by-product factory, then, would be an example of complex consolidation (or horizontal combination) in a scheme of things which is essentially integration (or vertical combination). The many assembly plants functioning under the Ford banner are instances of simple consolidation, since all are performing similar operations. Integration is illustrated in Figure 10.

Instances of Complicated Combination.—We see, then, that in a single enterprise there may be expansion in several directions. Ordinarily, the first step consists of aggregation, or the gradual growth of a single establishment, which eventually, however, reaches a maximum size for economical operation. Then the expansion may spread out horizontally, through the accession of one or more plants engaged in the same kind, or a different kind, of production. If the new plants engage in the same type of production, there has been simple consolidation; if in a different type, complex consolidation. Finally, the enterprise may launch out into "forward" or "backward" integration; the former, if the new establishments represent stages of production closer to the finished article, the latter if they are nearer the raw material stage.

Some large-scale industries never reach the third, or even the second, step of development that we have outlined. Others, again, such as the United States Steel Corporation and the Ford Company, have expanded both horizontally and vertically, until their many interests seem to the outsider to form a veritable maze of complications. As an evidence of the rapidity with which expansion sometimes takes place in this age of large-scale production, it may be mentioned that the Ford organization began operations, in 1903, with a paid-in capital of \$28,000. Although additions to Ford capital have been made only from earned profits, it is estimated that the business is now worth more than a billion dollars.

Extent of Industrial Combination.—The most recent statistical data available on the subject of industrial combination in the

United States are comprised in the records of the Bureau of the Census, and are for the year 1919. The study by Professor Thorp, to which we have referred several times, is based on these records. These figures show a total of 5,838 "central offices," or combinations, having under their control 21,464 manufacturing establishments, or approximately 10 per cent of all manufacturing plants in the country.

Complete data were available from 4,813 of these combinations. Of this number, it was found that 3,029 (or 63 per cent) consisted of simple consolidations; 881 (18 per cent) of complex consolidations; and the remainder (903, or 19 per cent) of integrated enterprises. Thus we see that more than four-fifths of these combinations were organized horizontally, slightly less than one-fifth taking the vertical form of organization. Three-fifths of the total, it will be noted, were combinations of similar establishments, manufacturing uniform products. It may be added that more than 88 per cent of all combinations recorded by the Census Bureau consist of not more than five establishments each, though in some few cases (18, to be exact) each combination is credited with more than fifty establishments.

INDUSTRIAL MONOPOLY

Large-scale production brings gains which, for the most part, are strictly legitimate, but consolidation and integration sometimes appear to result in conditions that are contrary to public policy. If, by increasing the size of a plant or combining a number of plants under one management, an enterpriser can reduce his costs of production, there should certainly be no objection on the part of the public. Indeed, it is entirely possible that the consumers will benefit through a reduction in the selling price of the commodity. But whether the price is reduced or not, there is little excuse for begrudging the enterpriser the gain that has come to him because of his superior ability in the field of production. Should he attempt, however, to make an abnormally high profit by reason of a superior bargaining position, then, indeed, there may be reason for censure, and even for public interference.

A serious disadvantage of industrial combination, from the

point of view of public welfare, is the possibility that an enterprise may grow to such vast proportions as to be dangerous. In other words, it may occupy so strong a position in its particular field as to undertake to dictate the terms on which consumers will be permitted to buy essential goods. Now, economic theory in general assumes the existence of competition between the several producers of a given commodity. It is supposed that manufacturer will compete with manufacturer, merchant with merchant, and so on; and that, in their eagerness to secure patronage, the competitors will offer their wares at lower and still lower figures, until finally a price based on costs of production is reached.

Some Hazards of Monopoly Control.—But if control has passed into the hands of one enterpriser, or a very few enterprisers, they may put an end to competition, and consequently to any assurance of a price related to production costs. And now we arrive at the central idea of monopoly, which is that degree of unified control over supply or demand which will permit the regulation of price. The history of the United States Steel Corporation shows that the control need not be complete in order to be effective; for this company, manufacturing less than 50 per cent of the steel output of the country, has yet exerted a powerful influence in establishing prices for the product throughout the trade. We shall see, in our study of price determination, that a small amount of goods sold at a high price may bring a greater return than a larger quantity at a low price. By restricting supply, then, the monopolist may add to his profits, but at the expense of the consumers, who will suffer in two ways: First, by having fewer goods to consume; and, second, by having to pay a higher price per unit than would prevail if the supply were not limited artificially by the monopoly.

It might, for example, be advantageous to the anthracite coal interests (pronounced a monopoly by the United States Coal Commission) to restrict their output, and thus raise prices. But as a result, many who need coal would be compelled to go without, or to get along with an insufficient quantity, and persons of larger means would be required to pay an extremely high price. In like manner, a monopoly may work hardship through the control of demand. Tobacco growers have often charged that,

because of concerted action on the part of the dominant tobacco manufacturers, the farmer has been obliged to sell his tobacco crop at a price dictated by the alleged monopoly—sometimes at less than cost of production—since there was no other market for his product.

There is the further danger that a monopoly, in order to maintain its position of dictatorship, may seek by unfair methods to keep would-be competition out of the field, and thus obstruct the road to freedom of enterprise.

Legal Aspects of Monopoly.—Indeed, much of the "trust busting" that was carried on under the presidency of Theodore Roosevelt was aimed at the elimination of unfair competition, as practiced by the so-called trusts. The Standard Oil Company, the United States Steel Corporation, the American Tobacco Company, the National Cash Register Company, and the United Shoe Machinery Company (to mention but a few) have in the past engaged in practices which the courts have condemned as unfair.⁶ Several of these huge combinations were "dissolved" by the United States Supreme Court; that is, they were ordered to disband as trusts, and to conduct their business as separate organizations.

However, there exist, at the present time, many large and powerful "holding companies," which have much in common with the older trusts, but are designed to prevent interference by the federal authorities. A holding company is a corporation which holds a majority of the stock of the individual companies that wish to join together for united action. It is in effect, though not in form, a partnership of corporations. The Supreme Court has ruled that a holding company, regardless of its size, should not be dissolved unless it indulges in unlawful restraint of trade, involving a risk of injury to the public interest.

The Wastes of Competition.—From what has been said, it must not be thought that all monopolies are objectionable. It may be, as we so often hear, that "competition is the life of trade." But it is sometimes, instead, the death of trade, for if competition is too intense, it results almost inevitably in ruinous

⁶ Examples of unfair practices by trusts may be found in Elliot Jones, *The Trust Problem in the United States*. New York: The Macmillan Co., 1921.

price cutting, which, if allowed to continue unhindered, leads to the bankruptcy courts. The public cannot afford, any more than the business man, to have business failures multiplied by "cut-throat competition," for, in the long run, it is the consuming public that pays the bill.

Moreover, competition often results in undue duplication of equipment and effort. A single water works, gas plant, or street railway can usually supply service at lower rates than could several units in each of these public utilities. Realizing this fact, we ordinarily grant a franchise (or monopoly right) to one concern, and demand that it render good service at a fair charge. To prevent abuse of the monopoly power that is thus set up, we often insist upon supervising the service and regulating the rates, through a public service commission which presumably represents the interests of the public.

Certainly, one important factor in bringing about monopoly organization is the desire to eliminate forms of competition that would make operation unprofitable. Another, as we have seen, is the hope of securing some of the advantages of large-scale production through an expansion of the business. Large-scale production, however, does not necessarily lead to monopoly, as witness the keen competition that exists between the Ford and General Motors companies. Of course, recognition of the legitimate reasons for the development of monopoly need not blind us to the fact that, once control is attained, there is grave danger that the rights of the consumer will be forgotten in the desire for large profits. Hence, the need for some sort of regulatory measures which will safeguard the interests of the public.

Limits to Monopoly Power.—Early attempts to deal with monopolistic organizations in this country took the form of dissolution, but after some fifteen years of ineffectual court action, this method gave way to regulation by law, under the supervision of the Federal Trade Commission. When complaints are made, the Commission holds hearings, ascertains the facts, and then issues orders to the offending concern demanding compliance with the law. Moreover, this Commission has the privilege of asking the federal courts to enforce its decisions. While seeking to eliminate predatory underselling, the Federal Trade Commission

makes no attempt to protect the inefficient competitors of great combinations.

Several other forces, apart from federal regulation, tend to limit the power of monopolies. One of these is the economic fact that if a manufacturer tries to charge too much for his goods (by regulating supply), the public will refuse to pay the price. Few commodities are absolutely essential; in most instances fairly satisfactory substitutes are available, and many consumers will turn to these rather than pay an outrageous price. It may be better for the monopolist, therefore, to be somewhat modest in his charge, so that the sales will not be so few as to cut deeply into total net returns.

Moreover, if phenomenally high profits are realized, the position of the monopolist is far from invulnerable, since powerful financiers are always casting about in search of investments which give promise of exceptional profits. It may be wiser, then, for the monopolist to curb his acquisitive instinct and make a reasonable charge for his product, rather than invite competition by demanding a price that is clearly far above costs of production.

In some few instances, to be sure, a monopoly is fairly secure from competition. If it holds its position of vantage by reason of a valuable patent, it may enjoy a large monopoly profit until the patent rights have expired. Even safer is the complete ownership of an essential raw material, such as the control exerted by the Aluminum Company of America over bauxite, the basic material for the manufacture of aluminum. Most monopolies, however, are not so fortunate or far-reaching in their holdings, and dare not tempt the fates too far.

It seems doubtful that these economic curbs alone would succeed in restraining monopolies from undesirable practices. The truth is that the earnings of large combinations are often due more to their bargaining power than to large-scale productive efficiency. It is the bargaining maneuvers of the trusts that are particularly in need of watching, and the Federal Trade Commission has demonstrated its ability to detect infractions of the law and damage to public welfare, and to propose appropriate remedies.

SPECIALIZATION IN ECONOMIC LIFE

ONE of the outstanding characteristics of modern economic society is specialization (or division) of labor. Though it is difficult to find a community, however small or primitive, in which there is no division of economic functions, it is unquestionably true that specialization tends to increase with the growth of population.

Specialization in Merchandising.—A simple example from the field of merchandising will show that this is the case. In sparsely settled regions, goods of many kinds are sold in general merchandising stores. Here can be found food, tools, dry goods, furniture, and other types of goods likely to be demanded by the people of the neighborhood. Often these general merchants deal also in such articles as grains and fuel, buying grain from the farmers near by and selling them a supply of coal, in addition to the articles usually found in a country store. As population grows and villages and towns develop where formerly there have been only a crossroads and country store, we expect to find and do find new stores opening up, and specialization begins to appear. The functions of the general merchant are split up, and some storekeepers undertake the sale of groceries, others of hardware, still others of dry goods, and so on.

With a still further increase of population, specialization in merchandising is carried another step forward. Instead of attempting, for example, to outfit the entire family with clothing, one merchant decides to confine his sales to men's wear, another to the sale of women's clothing, and a third specializes in shoes or some other single item of wearing apparel. In a more densely populated area, such as a great city with several millions of inhabitants, there is a tendency toward still greater specialization. The shoe dealer, for example, is quite likely to specialize

in either men's or women's shoes, rather than to try to handle both.

Specialization in Manufacture.—In manufacturing, as in merchandising, there is specialization. Indeed, it is seldom that we find a manufacturer undertaking to produce a great variety of articles. The manufacturer of shoes does not attempt to make clothing of other kinds; and the manufacturer of automobiles is likely to confine his efforts to the production of a single model, or perhaps several models, and not attempt to produce cars of many styles and grades.

Specialization in Agriculture.—In agriculture, although to a lesser extent, there is also division of labor. It is quite true that many farmers carry on a general farming business, but there are also specialists in the field of agriculture. In the Middle West we find a "wheat belt" and a "corn belt," with emphasis upon the products indicated by these names. In certain parts of Washington and Oregon, agricultural specialization takes the form of apple-growing. In Florida and California we have producers of oranges, and in many states of the South specialization in the raising of cotton. Thus, even a hurried and imperfect survey of our economic system indicates that there is much specialization in the leading branches of industry; and this is a tendency which is likely to increase with the further growth of population.

FORMS OF SPECIALIZATION

Specialization by Trades or Professions.—Specialization of labor takes several forms. The simplest of these is specialization by *trades* or *professions*. Whenever a population is sufficiently large to justify certain workers in devoting their entire time to the pursuit of particular trades, we are likely to find them concentrating their energies instead of engaging in several fields of activity. Thus, we have in modern times skilled artisans known as blacksmiths, bricklayers, machinists, cigar makers, glass blowers, paperhangers, structural steel workers, and so on. An examination of the many trades affiliated with the American Federation of Labor shows that nearly five millions of workers in the United States definitely regard themselves as destined to follow a given

trade throughout their working lives; and there are many unorganized workers who are distinctly tradesmen or craftsmen. In some of these trades an apprenticeship of several years is a requisite.

In the so-called learned professions we find a similar situation. The physician, the preacher, and the teacher are just as truly specialists as are the carpenter, the plasterer and the hod carrier. Indeed, in some of these professions, as for example in medicine, specialization is increasing all the time, though there is still room for the general practitioner in this field. There is a distinct tendency for doctors to become specialists in the diagnosis and treatment of particular types of human ills. We have long had dentists and oculists, who really are simply specialists in the field of medicine. Nowadays, we have nose and throat specialists, stomach specialists, heart specialists, and another group of specialists who deal with nervous and mental diseases.

Specialization by Tasks.—Division of labor also takes the form of specialization by *task*. The skilled worker is no longer asked to make an article in its entirety. Many of the tasks which were formerly done by hand are now done by machinery. The trade of shoemaking, to mention a single example, has almost disappeared, because shoes are today manufactured in large factories with the use of elaborate and expensive machinery, the work being performed by operations which bear little resemblance to shoemaking of olden times. In the manufacture of clothing, in the meat-packing industry, and in the construction of automobiles, a similar situation exists.

In large-scale clothing manufacture the tailoring trade has been broken up into a great many separate tasks, so that some 30 to 60 operations, each performed by a different worker, are now necessary in the making of a coat. In some shoe factories as many as 200 processes, performed by 100 different workers on 150 different machines, may go into the manufacture of a pair of shoes. Division of labor by task, then, is one of the leading forms of specialization, and it is quite definitely on the increase.

Specialization by Stages.—A third type of specialization is by *stages* or *complete processes*. In transforming raw materials into finished products the work often takes place under the super-

vision of several different producers, each of whom considers an article finished when he has made his contribution to its progress toward the form in which it reaches the ultimate consumer. In the manufacture of shoes the productive process begins with the raising of cattle, and the cattle producer sells his product with the feeling that his task is finished. The cattle, however, go to a meat-packing establishment where, among other things, the hides are removed and sold to a tanning establishment. So far as he is concerned the meat packer is through, and the tanner, also, has finished his job when the hide has been transformed into leather and is sold to the shoe manufacturer.

The shoe manufacturer himself is merely a step in this long process, for, although he feels that his function has been performed when the shoes are properly made and ready for use, there is still another process to be gone through. The shoes must pass from the manufacturer into the hands of a merchant, and not until the latter has delivered them to his customer has the production of a pair of shoes actually been completed. Nevertheless, through this long journey from the raw material to the finished and marketed product, there have been a number of stages at which the job is apparently complete.

Geographical Specialization.—A fourth and very important form of division of labor is known as *geographical* or *territorial* specialization. Specialization of this kind is frequently due to natural conditions. Most of the cotton produced in the world is grown in southern United States, because the soil and climatic conditions are favorable to its growth. For similar reasons silk is produced in Japan and coffee in Brazil. Certain natural resources such as coal, iron ore and petroleum are, as a matter of course, produced in those regions in which they have been deposited by nature. Thus certain areas near Lake Superior specialize in the production of iron ore, and a limited region in the State of Pennsylvania devotes most of its economic effort to the mining of anthracite coal.

In addition to specialization on the basis of natural deposits or advantages of soil or climate, there is geographical specialization due to developed or artificial conditions. Paterson, New Jersey, is famous as a silk center. Akron, Ohio, specializes in

the production of rubber goods. Most of the cotton and woolen cloth manufactured in the United States in the past century was made in New England, though there is now apparent a tendency to move cotton mills to the South in order to be near the sources of raw material and cheap labor. Shoe manufacturing has been concentrated in New England in the past, but is now proceeding westward. In some instances there have been real reasons for the location of a given industry in a given city. The presence of water power has often been the explanation, but with the development of steam (and, more recently, of electricity) as a source of power this reason for some localities specializing in the manufacture of certain goods no longer exists. In the case of industries moving from one region to another, we have evidence that in the long run specialization due to natural conditions will prevail. For example, it is sensible from the economic point of view to manufacture cotton cloth in the South near the basic material, provided other conditions are satisfactory, rather than in an area to which the raw cotton must be transported.

GAINS THROUGH SPECIALIZATION

Since specialization is so widespread an economic phenomenon, it is obvious that it must bring about certain advantages, or it would not have been adopted so generally. The chief social advantage to be noted is the greater variety and greater quantity of goods which result from division of labor of the types that have been mentioned. Industrial progress consists very largely of finding new and better ways of production. Specialization has come in response to the demand for improved methods. The greater production that results from the application of the principle of specialization may be accounted for in a number of ways.

Attainment of Greater Manual Dexterity.—In most manual operations great skill is acquired only through long training, and retained only by constant practice. Take, for example, the ability to use the typewriter. Any one who has undertaken to learn typing will acknowledge that at first it is a slow and difficult process; and yet it is quite easy for the practiced typist to write a hundred or more words a minute, and at the same read stenographic notes.

Specialization permits a person to devote sufficient time to the practice of a given trade or task so that he may gain a mastery of that trade or task.

Fuller Utilization of Individual Abilities.—Specialization enables a worker to undertake a task which is especially suited to his peculiar ability. Some persons are particularly adapted for mental work and others for physical work. The average college professor would make a poor showing as a farm laborer, and the farm hand would not be much more likely to succeed in the college lecture room. Specialization of various kinds makes it possible for almost any person to find a place where his talents, physical or mental, great or small, can be utilized to advantage.

Employment of More Machinery.—Specialization leads to the greater use of machinery in production. Division of labor consists of splitting up jobs, and through this process of simplification it is possible in many cases to intrust to the swift, sure performance of a machine certain tasks which were formerly done by hand. Furthermore, the greater demand which follows close upon lower prices made possible through specialization, often makes it feasible to purchase an expensive machine which would have been entirely too costly had specialization not been developed to a high degree. It should be noted here that specialization and large-scale production frequently go hand in hand, as in the meat-packing and automobile industries.

Greater Mobility of Labor.—Since specialization results in the simplification of tasks, it adds to the ease with which workers may move from one job to another. Much of the work in industry is now done on semi-automatic machines, and the general similarity of machine operation enables a machine operator in one industry to move at times into a different industry and take up, without long training, the operation of a machine requiring the same type and grade of skill, and yet turning out a very different product.

Simplification of Tasks.—Specialization renders unnecessary the former long training which was essential for the mastery of certain trades. Raw recruits can be trained in a few days to perform the simple tasks which fall to their lot in certain divisions

of the automobile industry. And the tendency of modern industry is so definitely toward simplification of task that a long apprenticeship need seldom be served in order for a worker to qualify for the ordinary factory job.

Continuity of Operation.—Specialization permits of economies through continuity of operation. Performing, as he does, a single task, the specialized worker need not lay down one tool and pick up another. Likewise, there is no necessity for adjusting his mental attitude to a new task since, under specialized industry, he is likely to perform the same task almost continuously throughout the day. Consequently, more units of product can be turned out in a given period of time under specialization than under conditions of non-specialization.

Stimulation of Invention.—Specialization is said to stimulate invention. This point was touched upon in an earlier paragraph. Complicated processes are broken up into less complicated processes, and these in turn are frequently split up into very simple tasks. When tasks become simple it is a relatively easy matter to devise methods which convert a hand process into a machine process. Hence, the process of simplification which comes through specialization must be given credit for aiding in the invention of labor-saving devices.

Example of Specialization in Meat Packing.—One of the reasons why specialization results in great economies is that it permits conformity to a principle of scientific management laid down at least a century ago, and more recently emphasized by Frederick W. Taylor and his followers. This principle states that a worker should be given the highest type of work he is capable of performing, and that type only.

The significance of this principle is seen when we realize that in the meat-packing industry the wages of workers range from $42\frac{1}{2}$ cents to 82 cents an hour. Needless to say, the 82-cent man is a highly skilled worker, and the $42\frac{1}{2}$ -cent man is not. The principle cited above demands that the 82-cent worker give all of his time to the performance of skilled operations, allowing men less highly paid to carry on work of lesser importance. In 1904, Professor John R. Commons wrote an interesting description of the

tasks performed by workers receiving different wages in the meat-packing industry. With the figures brought up to date, the description in part is as follows:

The 82-cent man is restricted to using the axe in splitting the backbone (splitter); and, whenever a less skilled man can be slipped in at $42\frac{1}{2}$ cents, $45\frac{1}{2}$ cents, 46 cents, 48 cents, 50 cents, 52 cents, $52\frac{1}{2}$ cents, and so on, a place is made for him, and an occupation mapped out. In working on the hide alone, there are a number of positions at different rates of pay. A $45\frac{1}{2}$ -cent man pulls off the tail, a 46-cent man pounds off another part where the hide separates readily, and the knife of the 65-cent man cuts a different texture and has a different "feel" from that of the 75-cent man. Skill has become specialized to fit the anatomy. In this way, in a gang of 79 men, slaughtering and dressing 100 cattle an hour, there are but 9 men paid 82 cents an hour, 2 men paid 75 cents, while the number getting 50 cents and over is 36, and the number getting under 50 cents is 43.¹

This illustration shows quite clearly that adherence to the principle stated above results in definite economies. As an evidence of industrial progress, we may note the fact that when Professor Commons wrote his article, in 1904, it required 230 men to kill and dress 105 cattle in an hour. At the present time, a gang of 79 men handles almost as many cattle (100, to be exact) in an hour. It is increased productivity such as this which permits the payment of higher wages to workers. In the meat-packing industry wages have increased very materially, in some instances more than 100 per cent since 1904. But this does not mean the ability to purchase twice as much goods as formerly, since the cost of living has also increased, though not to so great an extent as wages.

Manufacture of Interchangeable Parts.—Another important industrial principle, which is closely related to specialization, is that of standardized or interchangeable parts. Again, the principle is not a new one, though it has in recent years been employed more extensively than ever before. But as early as 1813, Simeon North, the first official pistol manufacturer to the United States

¹Professor Commons' article was entitled "Labor Conditions in Meat Packing and the Recent Strike," and appeared in the *Quarterly Journal of Economics*, XIX, p. 324.

government, was awarded a contract for 20,000 pistols, to be manufactured so that "the component parts of pistols are to correspond so exactly that any limb or part of one pistol may be fitted to any other pistol of the 20,000."² And Professor Marshall tells of the representative of an American watch factory, who, at the Invention Exhibition held in London in 1885, "took to pieces fifty watches before some English representatives of the older system of manufacture, and after throwing the different parts into different heaps, asked them to select for him one piece from each heap in succession; he then set these pieces up in one of the watch-cases and handed them back a watch in perfect order."³

Probably in no industry has this principle been used more widely than in the manufacture of automobiles. A Ford or Chevrolet car is so much like another Ford or Chevrolet of the same model, that a broken part may be replaced with a new part at very slight cost and with almost no loss of time. A similar advantage is enjoyed in the case of a great many commodities. Modern industry has been standardized or made uniform. This uniformity has been possible largely through the machine process; and the machine process in turn is tied up very definitely with specialization of labor.

It is true that specialization could exist to some extent in an industrial society which used but little machinery, but the fact is that specialization and the machine process have marched forward together in the business world. As a consequence, the consuming public buys goods at lower prices than formerly, enjoys the use of some goods which could not be made without the aid of machinery, and is able to replace broken parts of automobiles, farming implements, watches, radio sets, and countless other articles without delay and with very little expense.

Specialization and Large-Scale Production.—Since specialization and large-scale production are so closely related, it is difficult to separate their advantages and determine which are attributable

² Related in L. P. Alford's *Laws of Management*, p. 107.

³ Alfred Marshall, *Principles of Economics*, Eighth Edition, p. 258, f.n. New York: The Macmillan Co., 1920.

to each. An examination of the benefits of large-scale production, which were discussed in the last chapter, will disclose the fact that at least some of these gains are due primarily to the use of specialization in large-scale production.

INDIVIDUAL AND SOCIAL EFFECTS OF SPECIALIZATION

Monotony of Labor.—But specialization is not without its disadvantages. It is particularly likely to have harmful effects upon labor, the human factor in production. One serious disadvantage of our present industrial system is the monotony and irksomeness of labor performed under highly specialized conditions. We have seen that many of the workers of today are engaged in performing tasks, and often very minute ones, instead of carrying on the more general work which is performed under conditions of specialization by trades.

It is one thing for a tailor to design and construct a suit of clothing, and quite another for a worker in a modern clothing factory to devote his entire working time to making buttonholes. And yet a large percentage of our industrial workers today are engaged in tasks which to many persons must be distinctly uninteresting. When one buys a padlock he receives with it two keys on a small wire ring; and in lock factories in various parts of the country young men spend their time, eight hours a day, six days a week, putting these keys on rings.

Thousands of workers throughout the United States contribute to the productive process by supervising semi-automatic machines. Into the machines are fed, in some cases, strips of brass or other material from which are stamped small metal disks to be used in certain branches of manufacture; and the worker's job consists of seeing that these machines do their work continuously and accurately. It is no wonder, then, that many industrial employees work with one eye on their machines and the other on the clock, and that they regard the working day as a certain amount of time to be expended and done with.

The evils of monotony are generally recognized by managers; and while some employers regard monotony as unavoidable,

others are doing their best to counteract the ill effects by providing rest periods at intervals during the day. Thus the worker is enabled to get his mind off his task for a few minutes, and comes back to the job refreshed both physically and mentally. It is difficult, if not impossible, to determine the actual effects of monotony on workers. Work that might be deadly to some does not appear to injure others, and those who would be affected detrimentally often escape by not having to do the kinds of jobs that would be harmful to them.

Loss of Interest in Job.—Another disadvantage of specialization is that it is likely to stifle the instinct of workmanship. The old-time shoemaker who could produce a shoe, having nothing but the raw materials and his tools to start with, was able to exhibit his product as a piece of creative work; and, in addition to receiving pay for the shoes which he made, he might expect also a word of praise for the excellence of his work. But the modern shoe operative never comes in contact with his customer, and in all probability never sees the finished product in the manufacture of which he has had a part. This situation means a lessening of interest on the part of the worker, and a lack of realization of the true significance of his contribution to society in carrying on faithfully his daily task.

Here, again, progressive employers have attempted to remedy the evil. In some cases workers are taken on trips through the plant, and are given an opportunity to hear talks and see motion pictures which describe the entire process of manufacture; and thus, in some small measure at least, they are made to feel that they have a definite and important share in the productive process.

Narrowing Effect of Specialization.—Another danger of specialization, closely related to that which we have just discussed, is its narrowing influence on the workers under the conditions of extreme subdivision of labor. The difficulty is that specialization often means the continuous use of one part of a man's ability, and of that part only. The result is an overdevelopment of certain faculties of the worker, with a neglect of other factors. A workman under these conditions, having devoted per-

haps twenty or thirty years to the performance of a single task, is pretty certain to be a one-sided individual.

It has been suggested that this disadvantage might be overcome to some extent by training every man for at least two types of work; so that, in addition to avoiding the monotony of performing the same task over and over again without relief, he might develop more of his talents than are usually developed under modern industrial conditions. Something has been accomplished along this line, but much remains to be done.

Increased Interdependence.—Specialization results in increased interdependence between individuals, communities and nations, and this interdependence sometimes has undesirable results. Under simple economic conditions, with the family producing virtually everything that it required, there was little or no dependence upon others. Nowadays, a failure of the cotton crop of the South would affect not only the farmers engaged in raising cotton, but the merchants who live by selling groceries, hardware, clothing, and other necessities to cotton producers, the railroads that depend upon the prosperity of the cotton belt for patronage and consequent revenues, and, indeed, all who are associated in a business way with this great economic area.

The inability to get raw material, cotton, might easily cause the closing of cotton mills in New England, or even in Europe, as was the case during the Civil War. And, on the other hand, should British manufacturers be unable to find markets for their cotton goods, the effect would be to reduce materially the exports of cotton from the United States to England, and perhaps bring the price in this country far below the actual cost of production.

Separation of Worker from Ownership of Tools and from Product.—Specialization, as it works out under the private ownership of capital, results also in the separation of the worker from his tools and from his product. Under present-day conditions, most workers are dependent upon other persons to supply the tools with which they work. When industry was in a simple stage, and the machinery required was inexpensive, the worker could be relatively independent. Today manufacturing is carried on with the aid of expensive machinery which the individual workman can neither buy nor operate alone, and so he is com-

pelled to look to an employer for a job. Should the employer decide to close his plant, the workman loses his means of livelihood.

Wholly apart from the possibility of unemployment due to his dependence upon capitalist manufacturers, it is difficult for the worker to know whether he is receiving as much pay for his services as he should have. It is commonly said that the worker is entitled to whatever he produces. Under simple industrial conditions there is little difficulty in knowing what the individual worker produces. When the old-time shoemaker completed his pair of shoes, the finished shoes were his product, and he was at liberty to sell or exchange them for something else. The modern shoe operative, whose task may consist merely of tacking heels on shoes, finds it much more difficult to ascertain just how much his product amounts to. He is likely to be compelled to take the employer's decision in the matter, unless, through trade union action, he has a part in making this decision.

Many problems have arisen, and are constantly arising, in connection with the size of the share of the product that should go to the worker. Strikes have been fought, time and again, over the question of wages, which is simply the question of the share of the product to which the employee is entitled for his assistance in the productive process.

Benefits to the Workers.—All of the disadvantages which have been noted are likely to have a detrimental effect upon the workers as individuals, and some, as has been seen, affect society in general. There are several benefits to workers which have been brought about largely through specialization, and which tend in some degree to offset these disadvantages. One of these benefits is shorter hours. A few decades ago a working day frequently consisted of ten hours and sometimes of eleven or twelve. Nowadays eight hours of work are all that most industrial workers in this country are expected to put in, in a single day. The shorter working day has resulted from several causes, but one of these is the insistent demand for fewer hours of work in view of the increasing monotony of labor.

Specialization has also resulted in the abolition of much heavy, dirty, disagreeable work which was formerly performed by human beings, but is now being done by machinery. A third ad-

vantage is the larger income (not only money, but *real* income) of today as compared with that received by wage earners of the nineteenth century. Specialization, as we have seen, brings greater wealth, and this makes possible in turn higher standards of living for workers as well as for employers.

CHAPTER IX

AIDS TO ECONOMIC PRODUCTIVITY

LAND and labor are the primary factors of production. These factors, when put to work in combination, are productive of economic goods. But the quantity of the product depends very largely upon the methods by which labor goes about converting land, the raw material, into finished goods. We have noted, in earlier chapters, some measures that have been adopted to increase the effectiveness of man's economic efforts. These measures include the use of the roundabout process of production, strict attention to the most economical arrangement of the productive agents, and specialization in its various forms. We shall now look further into the ways and means through which society has made, and may continue to make, economic progress.

TRAINING FOR BUSINESS LIFE

Labor is human energy expended for the purpose of acquiring income. The size of the income that is obtained sometimes bears a close relationship to the quantity of energy expended. But this is not always true, for a little human effort rightly applied may result in a much larger product than a great amount of effort that is used unwisely. Success in economic production depends, in large part, upon the possession of knowledge of the best methods of procedure, whether in manual work or in management. Recognition of this fact has led to the development of several types of industrial education.

Instruction in the Public Schools.—It is difficult, if not impossible, to classify accurately courses of study as contributing, or not contributing, to economic efficiency. At least a minimum of schooling appears to be essential to a genuine interest in life, and likewise to an intelligent interest in one's work. If grade

school and high school training succeeds in arousing intellectual curiosity, then, whatever subjects may be taught, the schools are performing a most valuable service, and one which is not unlikely to result in suggestions for improved methods in industry. For the boy who develops an inquiring attitude toward his studies is pretty certain to carry the habit of inquiry into his work in the business world.

But the public schools of today go a step beyond general education, and offer courses that contribute more directly to economic effectiveness. Manual training and vocational instruction of several kinds aim to develop skill in "manu-facture" (that is, in making things with the hands), and the knowledge and practice thus gained have dollar-and-cents value to those who become woodworkers, machinists, or skilled artisans of other types. Clerical workers, such as stenographers, typists, and bookkeepers, receive training in the "business courses" of our modern high schools.

Continuation Schools.—The term "continuation schools" is applied, in general, to "all schools of any type which offer to people, young or old, *while they are at work*, opportunity for further training or education. . . . The work offered may be in fundamentals; it may be cultural or it may be vocational, or all of these; the essential condition seems to be that those enrolled shall actually be at work during the major part of the time."¹

Our chief interest in continuation schools, in the present connection, is to note their facilities for giving vocational training. Schools for workers are of many kinds, of which, however, we shall give but a few examples. *Night schools*, such as the so-called "business colleges," often specialize in the instruction of clerical workers. Schools of this kind are usually prepared, also, to teach such fundamental subjects as the "three R's," but their specific job is to prepare young men and women for positions as typists, stenographers, bookkeepers, and filing clerks. Night schools conducted by the Young Men's and Young Women's Christian Associations offer a considerable variety of courses, including training in secretarial work, mechanical drawing, the physical sciences, and so on. The educational work of the Young Men's

¹ Arthur J. Jones, *Annals of the American Academy* (Philadelphia), September, 1916.

Christian Association has been of an especially high order, and certificates of proficiency are granted to students only after examination by eminent specialists.

Correspondence schools sometimes undertake to provide instruction in a wide range of subjects, as is the case with the International Correspondence School, of Scranton, Pennsylvania; or, again, they may restrict their efforts, as does the Alexander Hamilton Institute, to training in business subjects, or instruction in some other single line of activity. Correspondence courses are now being offered, also, by some of the great universities, such as Columbia University and the University of Chicago.

Evening schools for higher business training, as distinct from the night schools that specialize in clerical subjects, are conducted by certain colleges and universities. Business courses in the Evening School of Accounts and Finance of the University of Pennsylvania are similar to those given in the day classes of the Wharton School of that university, and are taught by many of the same members of the faculty. Accounting, advertising, salesmanship, insurance, real estate, and economics are among the subjects to be studied in this particular evening school; and courses of similar kinds are given at night by colleges and universities in several of our large cities.

Collegiate Education for Business Leadership.—The world of industry has for a long time looked to our colleges and universities to provide men trained in mechanical and electrical engineering, chemistry, and other technical subjects. It is only in comparatively recent years that the development of "business men" in the broader sense of the term has come to be regarded as an important part of collegiate work. Evening classes in business subjects offered by colleges and universities ordinarily reach far fewer students than the daytime instruction in business that is given by these institutions. There are at least 180 colleges in the United States that maintain definite administration organizations devoted to collegiate education for business.²

² Much valuable information on this subject is to be found in *The Journal of Business* (University of Chicago), Vol. 1, No. 1, January, 1928, from which the data here presented have been taken.

Twenty-two colleges and universities have a four-year course in business training, and twelve a two-year course, leading to undergraduate degrees. Four institutions confer only graduate degrees in business administration. These colleges and universities, in offering the two- and four-year courses in business training, while not overlooking entirely the "broadening" subjects that form the major part of the usual college curriculum, yet specify that a large amount (and in some instances, more than half) of the student's time shall be given to definite preparation for business careers. The remainder of the 180 institutions referred to above place less emphasis upon business subjects, though they maintain departments of business administration.

The purpose of collegiate education for business is to provide training for those who are to be industrial leaders. This is an exceedingly important work, in view of the fact that economic prosperity depends in large measure upon the caliber of our industrial management. It is quite true that relatively few of the great "captains of industry" of the past have had formal business training; but modern business is becoming more and more a matter of exact knowledge, with a proportional reduction in the amount of guesswork, so that systematic training in business is a matter of ever-increasing significance.

There is no general agreement as to the exact nature of instruction that is best suited to meet the needs of prospective business men. It may be said, however, that a collegiate course in business is not complete unless it includes training in logical thinking, development of the imagination, a knowledge of general business practice, and an understanding of human nature. Such subjects as geometry, logic, and economic theory aid in the development of the reasoning faculties. The study of philosophy, literature, and many other subjects, has a broadening influence, and helps to develop the imagination. A knowledge of business practice is provided through courses in finance, manufacturing methods, insurance, statistics, and so on. Not least important, in the interests of successful operation of business, is an understanding of and a respect for the feelings and opinions of others. The many and varied contacts of college life do much to aid one in gaining a

knowledge of human nature, and in learning to examine problems from different points of view.

Training Provided by Business Concerns.—The day of apprenticeship seems to have passed, and with it has gone a system of thorough training "on the job" which dates back at least to the time of the medieval trade or craft guilds, when master craftsmen undertook to teach their trades to others, over an apprenticeship period of from four to seven years.

With the decline of the apprenticeship system, there has been a tendency to delegate to the public schools a large part of the educational task which had been performed in the shops under the guidance of skilled tradesmen. The schools, as might have been anticipated, did not prove wholly equal to the task. Consequently, though the public schools may well be expected to give training in fundamentals, we now look to individual business interests to provide whatever strictly technical training their manual workers may require.

Training in the plant has the double advantage of being practical in its nature and of providing, at the same time, the maximum of opportunity and the maximum of incentive; for training received in the shop is under the observation and supervision of foremen, or possibly of other persons directly charged with the instruction of workers. Under these circumstances, it is to the advantage of those who teach to give the best possible training and produce proficient workers; and the learners, also, are usually anxious to make a good impression, with the thought of gaining recognition by reason of rapid progress in mastering the details of a task or trade.

Business training, then, is in large part a problem of management. Some industrial concerns have departments of education, with formal classes either during business hours or at night; but in most cases the formal instruction, which deals largely with methods of teaching, is given to the foremen only, and they in turn instruct the workers in the shop as a part of their daily task.

Private enterprise has done a great deal in the past decade or two to increase educational opportunity in industry. In addition to the foremen-training classes which we have referred to above, and the trade schools which are sometimes conducted by business

concerns, we find some of the larger companies sending their employees to colleges and business schools. The General Motors Company has itself established an Institute of Technology at Flint, Michigan, where certain employees are given training in engineering to supplement the practical training which they have received on the job. The Frigidaire Corporation (which is a member of the General Motors group) not only provides students for the Institute of Technology at Flint, but also sends employees to the University of Cincinnati and to Antioch College to enable them to secure further training.

Business Training of the Future.—The agencies for business training which we have discussed briefly are in their infancy. We shall not venture to predict the degree to which they are likely to develop, but it seems reasonable to suppose that, as business becomes more and more scientific, there will be need for more and more formal training. Broad, general, fundamental courses will doubtless continue to be given in large measure by public or semi-public agencies. The more specialized instruction will probably be left, in the case of manual workers, to the industrial concerns that are to use this skill once it is developed. For the training of business managers and technicians, modern industry seems likely to lean more and more heavily upon the colleges and universities.

The need for training in present-day economic life is almost self-evident. The old saying, "Knowledge is power," has special significance in business practice today. Machine methods have brought amazing increases in the production of goods; but this very fact of increased production makes losses all the greater if any possible reductions in unit costs are overlooked. It is important, then, that industrial workers of all kinds be properly instructed in the performance of their respective tasks. It is vital, moreover, that management be well informed and mentally alert, with the ability to reason from cause to effect, and the power to visualize in advance the outcome of a proposed course of action, for "where there is no vision, the people perish." Training for business life must not be expected to work miracles, but it has done much, and can do still more, to add to the

effectiveness of human effort (whether manual or managerial) expended in economic activities.

THE PHYSICAL SCIENCES IN INDUSTRY

Probably nowhere do we see more clearly than in the case of the physical sciences the power of knowledge to further economic progress. We might, if we liked, go back to those epoch-making discoveries that have been known to man for ages—the wheel, the lever, and the inclined plane—and trace their development through the centuries until we arrived at the complicated industrial machinery of today. But there is no need to call upon the past for examples of economic advance through the aid of the physical sciences. Illustrations are about us on every hand.

Applied Science in Agriculture.—Science, for example, has played an important rôle in the most fundamental of economic pursuits, agriculture. *Chemists*, through analysis of soils, have been able to discover the deficiencies of given plots of land, and to prescribe fertilizers that would add to the soil the plant food required for the production of desired crops. *Botanists* have searched the world for more prolific or hardier species of plant life (such as wheat suitable for northern climates), and have modified known forms of foodstuff (as, for example, in the development of the seedless orange). *Entomologists* have sought out the weaknesses of insect pests, such as the potato bug and corn borer, and, armed with this knowledge, have learned to combat the pests without injuring the plant life.³

Applied Science in Manufacturing.—Research in physics and chemistry has made invaluable contributions that are of general use in manufacturing. A few years ago, it was considered good practice if two-thirds of the heat units of coal were transferred to steam in an engine; today, owing to research in the field of

³ "Among the most important means of increasing the yields of crops are: (1) The selection of crops better adapted to the available soils; (2) the employment of suitable rotations; (3) the use of better adapted varieties; (4) the reduction or elimination of losses from the depredations of insects and diseases; (5) control of weeds; (6) better or more thorough methods of preparing the land and cultivating the crop; (7) larger or more effective use of fertilizers; and (8) the substitution of crops which give a larger yield per acre for those which give a smaller yield."—From *Yearbook of the United States Department of Agriculture*, 1923, p. 464.

combustion, nine-tenths of the heat in coal can be utilized. In like manner, the efficiency of hydraulic turbines has been increased greatly. These advances in the use of power have been matched by developments in the manufacture of steel and other metals. Mechanical and chemical experimentation in metals has resulted in the production of steel of many kinds for a multitude of specialized purposes; for example, it has been found possible to make steel for high-grade cutting tools so that the cutting edge will be retained even at a red heat. In a machine age such as ours, research in metals holds great significance.

The application of science to specific problems has oftentimes been productive of startling results. Through persistent experimentation, the electric light was transformed from the carbon light of Thomas A. Edison to the Tungsten light of the General Electric Company, and then to the still more efficient argon-filled lamp. Here we have a steady improvement in the quality of an everyday article. Science in industry also results in the development of new consumers' goods. Artificial silk is a case in point. Through the research work of expert chemists, a satisfactory substitute for real silk was devised, with production costs only about one-half as great as the costs of the real article.

Another illustration of the benefits of chemical research is to be found in the handling of coal tar, a by-product of the coke industry. The science of chemistry has taught us how to utilize this one-time waste substance, in the manufacture of roofing and road materials, dyes of all hues, perfumes, and drugs. It is fair to say that we are only beginning to realize the possibilities of chemical research in the industrial world.

Industrial Uses of "Pure Science."—It is estimated that we are spending in the United States over \$10,000,000 a year on "pure science," and more than \$200,000,000 annually in applied scientific research. Pure science is the pursuit of scientific knowledge *for its own sake*; and numerous laboratories are dedicated to research of this kind, frequently in connection with our colleges and universities. There are those who, though they wax enthusiastic over scientific research in its relation to specific industrial problems, regard pure science as "impractical." And yet the search for scientific knowledge, carried on with no thought of material

gain, may have tremendous practical significance, as a few illustrations will show.

For three modern inventions that have contributed greatly to human happiness—the electric light, the radio, and motion pictures—we are indebted, in part at least, to laboratories of pure science. Take, for example, the case of the electric light. Physicists had been working for several centuries to produce a perfect vacuum, with no practical end in view. But when Edison found, in 1879, that he needed a vacuum for his incandescent lamp, the practical importance of the work of these early physicists became evident; for, finding his vacuum “ready made,” Edison was able to proceed with the development of his lamp without being hindered by the necessity of devising first of all a vacuum.

The great radio industry, now producing goods valued at hundreds of millions of dollars annually, has been built upon both pure science and applied science. In 1873, Clerk Maxwell, an English mathematician, developed a mathematical theory of light, which indicated the possibility of certain lengths of ethereal waves. Heinrich Hertz, in 1887, succeeded in detecting, by experiment, the actual existence of these waves. The next step was their utilization by Marconi in wireless telegraphy, and finally came their adaptation to wireless telephony by De Forest and others. The motion picture industry, representing today a capital investment of something like one and a half billion dollars, had its start at the University of Pennsylvania, when \$30,000 was expended to experiment with the idea that photographs could be projected upon a screen so that they would accurately represent action.

Laboratories of Applied Science.—In addition to pure research in the physical sciences, which is being conducted by those who are interested primarily in the attainment of knowledge rather than dollars, there are being carried on (and on a much larger scale) investigations designed to solve certain practical industrial problems. Research of this kind is sometimes subsidized by associations of firms; and, again, it is financed by individual concerns.

An example of a cooperative laboratory is that set up by the manufacturers of Portland cement in the United States. These

concerns have long recognized the fact that the users of cement should be instructed as to the best methods of making concrete from cement, for the proportions of sand, cement, and water vary with the uses to which the cement is to be put. Consequently, in 1916, the Structural Materials Research Laboratory was established by the manufacturers of Portland cement, for the purpose of making experiments and teaching the general public the many uses to which cement could be put, and the proper mixture in each case. This laboratory now has a staff of forty persons, and makes some 50,000 tests a year.

Laboratories operated by individual concerns frequently consist of two divisions. The first of these is a *testing division*, which gives its time and attention to routine work. To this division is intrusted the analysis of all raw materials, to insure that they conform to specifications, and the testing of batches of stuff in process of manufacture, and sometimes of finished products as well. Samples of molten metal, soap and rubber in the liquid state, and other commodities that must measure up to designated standards, are subjected to analysis at various stages of the manufacturing process. The *research division* engages in original work, with the object of making improvements in processes or finished product, or both. Nearly all progressive concerns manufacturing steel, oil, silk, rubber, and other commodities sold in great quantities maintain a force of research men who seek out new and better methods in the hope of keeping ahead of competition.

Some Outstanding Industrial Laboratories.—It is estimated that there were, in 1927, some 16,000 scientists and engineers giving their time to industrial research in the United States. About one-half of these were engaged in investigations in the field of chemistry. The largest research undertaking in this country is that of the Bell Telephone Company, which has about 2,000 physicists, engineers, and chemists, who devote their time to original investigation which, it is hoped, will lead to the development of improvements in the apparatus and equipment used for electrical communication. E. I. du Pont de Nemours & Company, manufacturers of chemicals, dyes, paints, explosives, and many other articles, have a force of 850 research men in six laboratories. Other concerns conducting research on a large scale are the

General Motors Corporation, International Harvester Company, General Electric Company, B. F. Goodrich Company, New York Edison Company, National Carbon Company, and Eastman Kodak Company.

A National Research Laboratory.—Before closing this brief discussion of science in industry, we must call attention to the United States Bureau of Standards at Washington, which has been called "The World's Greatest Physics Laboratory." The Bureau is supported by the United States government with an annual budget of \$2,000,000, and has a staff of 800 workers. It develops standards of weights and measures, of electricity, of safety, and of materials. At times, between three hundred and four hundred studies are in progress, and more than 180,000 tests are made every year.

It is estimated that the experiments performed at the Bureau of Standards result in a saving of \$100,000,000 a year in government purchases alone. The Bureau, moreover, cooperates with industrial concerns throughout the country, conducting experiments designed to test the merits of their respective products. Through the research work of this great laboratory, some \$15,000,000 are saved annually on the single item of brake lining; \$40,000,000 on tires; and \$100,000,000 on motor fuel.

THE EFFICIENCY OF MANAGEMENT

"Management, the unseen force which drives all that is physical within a factory, is by far the most important factor of the present industrial age," writes an authority on industrial management.⁴ "Machinery and materials may be put to work, workers may labor; but without adequate management to organize and consolidate them into a profitable, co-ordinate whole, to distribute the results of their work effectively, and to govern their operations during performance, this performance may become so uneconomic as to cease entirely."

Modern Methods of Management.—We have already noted the importance of able leadership in industry, and the part that

⁴ Richard H. Lansburgh, *Industrial Management*, p. 1. New York: John Wiley & Sons, Inc., 1928.

colleges and universities play in training men for managerial posts. We turn now to a survey (which is, necessarily, incomplete) of advances in managerial methods that have developed, in the main, during the past thirty years. They are usually grouped under the headings, "Scientific Management" and "Personnel Administration." "Scientific management is concerned with improving the physical conditions of production, handling workers with skill and precision, and securing their cooperation through such devices as incentive wage systems. Personnel management seeks primarily to establish satisfactory employer-employee relationships, to implant in the worker a feeling that his interests are being cared for, and thus to develop good will and loyalty toward the management."⁵

The Principles of Scientific Management.—Scientific management has for its purpose an increase in production through the scientific direction of the working personnel. It consists, as one writer has said, of "getting the right man to use the right tools in the right way." According to Frederick W. Taylor, "the father of scientific management," the way to get the best results in production is to adhere strictly to the four leading principles of management, which are these:

1. A clearly defined and carefully circumscribed task.
2. Conditions such that the daily task can always be accomplished.
3. High pay for tasks successfully done.
4. Low pay in case of failure.

Taylor's idea, then, was to set a fairly high standard of accomplishment, and yet one which could be attained by a first-class workman; to encourage the worker by paying well for the successful accomplishment of the prescribed task, and to penalize with low wages a worker who could not measure up to the established requirements. The effect of a system of this kind is gradually to weed out the inefficient, and thus to build up a force of especially capable workers.

Some Devices of Scientific Management.—The details of

⁵ Paul F. Gemmill, *Present-Day Labor Relations*, p. 53. New York: John Wiley & Sons, Inc., 1929.

scientific management have been modified since Taylor's time, but the principles that he set forth are still valid. We may note briefly several of the devices through which scientific management attains its ends.

One of the most important of these is the *separation of brain work and hand work*. Prior to the introduction of modern management methods, it was customary for much of the planning of work, as well as its execution, to take place in the shop. Scientific management separates those who plan from those who perform. This arrangement relieves the manual worker of the necessity of determining upon his course of procedure, and insures that the various tasks shall be performed as outlined by the planning department, which is presumably in the best position to know the most efficient method of performance. In many cases, written instructions go out from the office to the shop, setting forth, step by step, the exact manner in which the job is to be done.

The need for carefully outlined directions lies in the fact that the worker, though he has been on the job for years, often does not know the best method of procedure. This fact has been revealed through *motion studies*, conducted for the purpose of eliminating waste motions and thus increasing efficiency. The late Frank B. Gilbreth discovered that if bricklayers were given the proper working conditions, and all waste motions were avoided, they could lay three times as many bricks in a given time as by the old, unscientific method, and without any greater effort. Similar studies of so simple a task as shoveling coal, cinders, or crushed stone, have demonstrated that the use of shovels best adapted to a given material, the lifting of neither too much nor too little in each shovelful, and the adoption of the proper series of movements, result in an almost unbelievable increase in productivity.

We have used the expression "proper working conditions" in the preceding paragraph, and we now come to an important item of scientific management, namely, the *standardization of working conditions*. This means not only adopting uniform conditions for the same tasks, but seeing to it that nothing but the *best* conditions, arrived at after a thorough, detailed study of all possible improvements, shall be tolerated. Experimentation has

shown that it sometimes requires only a small change in working conditions to bring about a large increase in efficiency. Improvements in lighting, for example, have been known to result in a 20 per cent increase in production.

Another device of scientific management is *time study*. This is an attempt to ascertain how much time should be given by a worker to the performance of a task. If a time study is to have any real significance it must be preceded by the standardization of working conditions, which, as we have just seen, involves a thorough investigation of all details of the job, and the adoption of whatever changes will enable the employee to work to the best possible advantage. The next step is to make an accurate analysis of the time necessary for performing the task, by repeatedly timing first-class men who are doing this work under the standardized conditions. On the basis of this time study, wage rates are set, usually on a unit basis. Those who are able to turn out the allotted number of units in a given time are paid higher wages than the usual wage prevailing in the trade, and workers who succeed in reaching still higher standards of performance are given a further reward, called a "bonus." The practical results of *incentive wage systems* of this kind will be noted in a later section of the present chapter.

Scientific management includes many practices into which we cannot go, owing to lack of space. Among these are the control of purchases, the proper routing of materials through the plant, the systematic maintenance and issuance of materials and tools, the control of production, an adequate system of cost accounting, and many other items.

Personnel Administration and Its Functions.—The problem of personnel administration is to stress personnel relationships in industry which have been largely lost with the growth of giant businesses employing sometimes many thousands of workers. Personnel administration usually involves the establishment of a personnel department, or at least the hiring of a personnel director, whose job it is to promote good feeling, lessen friction, and look after the well-being of the workers, as well as the interests of the employer.

The functions of a personnel department are many or few, depending upon the extent to which the concern is convinced of the importance of personnel work. In most cases it is the duty of a department of this kind to hire employees and place them in positions in the plant so that their particular abilities will match up with the demands of the job. One of the tragedies of industrial life is that many workers get into positions for which they are unfitted and in which they are unhappy. Through the careful selection of workers, and their proper placement, it is possible to avoid getting so many "round pegs into square holes."

Another task often undertaken by the personnel department is to introduce the new worker to his job, get him acquainted with those with whom he is to work, and thus endeavor to make him feel at home. When there are facilities for the training of workers in the plant, the educational program is usually under the control of the director of personnel. He is also frequently called upon to give advice in connection with promotion of workers to better jobs; and in some establishments a man cannot be discharged until his case has been reviewed by the personnel director, and an effort made to see whether a transfer to another department might not be substituted for the proposed discharge.

One of the jobs of the personnel director is to listen to grievances, and to render decisions when disputes occur between foremen and workers. Another duty is to stimulate the employees' interest in their work and their loyalty toward the establishment. To this end some concerns have motion picture shows during the noon hour, hold athletic contests, issue shop magazines containing pictures and items of interest about employees, conduct plant restaurants at which excellent food may be obtained at low prices, and so on.

Here again, as in the case of scientific management, we have been able to touch upon but a few of the important phases of the subject. Our purpose has been merely to indicate the general methods of present-day management, and the efforts which are being made to discover new and better ways of performing the functions of leadership in business. It should be mentioned, in this connection, that these two types of management have thus

far made relatively slight progress. That is to say, the vast majority of business concerns in this country are still being conducted largely on an unscientific basis. But as scientific management and personnel administration are able to show concrete results, they may be expected to make headway and achieve a wider adoption.

THE ECONOMY OF HIGH WAGES

One of the most interesting developments of recent times is the acknowledgment, on the part of industrial managers, that it is "good business" to pay high wages. This admission means that our business men recognize the fact that high wages do not necessarily mean high costs of production. Indeed, it is entirely possible that an increase in wages will lead to so great an increase in product that unit costs will be lower than those which prevailed before the wage increase took place.

High Wages and Production.—There are several reasons why high wages result in greater production. One is the fact that when good wages are paid there is likely to be a minimum of industrial strife. Workers who are receiving high wages are likely to feel that they are being well treated, and are consequently unlikely to "lie down on the job" or respond eagerly to a suggestion that they go on strike.

Moreover, high wages enable workers to purchase at least a comfort standard of living; and well-fed, well-clothed, well-housed workers are not only more willing, but are better able to do good work than those who are poverty-stricken. If a man is continually worried for fear that he may not be able to support his family properly, he is not in a position to give his best efforts to his employer. There is, then, a relationship between standards of living and capability, as most progressive employers now realize.

High Wages and Consumption.—High wages affect production, also, through their influence on consumption. High wages mean large purchasing power, and this purchasing power plays an important part in directing economic activity. If, for example, the rank and file of the workers are being well paid and can

purchase Ford and Chevrolet cars, production of these low-priced cars will flourish; but otherwise the sales, and consequently the output, will be small. The influence of general high wages upon production is apparent when we note that more than 90 per cent of the automobiles manufactured in this country are sold right at home. And about 98 per cent of all boots and shoes made in the United States are bought by Americans.

Henry Ford on Wages.—Perhaps no business man in the country is in a position to speak with more authority on the subject of high wages than Henry Ford. It will be recalled that, in 1914, Mr. Ford established in his plants a minimum wage of \$5 a day, in place of a wage which had been approximately half that amount. In March, 1928, approximately one-fourth of the Ford employees were earning from \$6 to \$7 a day, one-half from \$7 to \$8, and the remaining fourth from \$8 to \$10. There were, it is true, a very few earning less than \$6 a day, and a considerably larger number earning more than \$10 a day. These figures are given simply to show that Mr. Ford apparently means what he says when he pronounces the raising of wages "one of the finest cost-cutting moves we have ever made." Any move which is cost-cutting is necessarily a move that results in increased production.

The Effects of Incentive Wage Systems.—Reference was made, in an earlier paragraph, to incentive wage systems. We revert to the subject simply to present a few concrete instances in which high wages, earned under incentive wage systems, have resulted in greater productivity. The National Metal Trades Association, in a recent report on methods of wage payment, stated that more than one-half of its members use incentive wage systems, and that the results obtained almost universally are "increased employee earnings; increased production; low costs per unit of product."⁶ The Hoosier Manufacturing Company increased production 30 per cent through a bonus system, and the labor efficiency of certain laboratories of the Atlantic Refining Company was increased 90 per cent by the installation of an incentive wage system. These few instances, which could be

⁶ L. P. Alford, *Laws of Management*, pp. 24, 25.

multiplied many times, tend to substantiate the theory that high wages often result in low labor cost.

INFLUENCES OF POPULATION ON ECONOMIC LIFE

The late Professor Alfred Marshall has shown in his monumental work, *Industry and Trade*, that the "make-up" of the population of the country may have much to do with its economic achievements. Taking the United States as an example, he suggested that much of the progress of this country, in an economic way, has been due to the character of the population. In the early days of immigration, most of the people coming to the United States were from Great Britain, Germany, and the Scandinavian countries. More recently there has been a very great influx of people from the southern and eastern countries of Europe. The effect of these different types of immigrants upon the country, which they have since made their home, has been pronounced.

The Effect of Population Upon Production.—The early immigrants from Northern Europe were in large part farmers, but their numbers included, also, many workers trained in the making of types of goods for which considerable skill was required. This skill was important in the early stages of American industrial life; but, with the increased use of labor-saving machinery, skill on the part of the worker became less significant, and much of our machine work was, and now is, performed by relatively untrained workers from the South and East of Europe. The operation of a semi-automatic machine is a simple operation, which can be learned in a few weeks or months. Henry Ford, for example, states that he has so simplified the manufacture of automobiles that he can use in one or other of his plants people of very limited skill, and indeed of very meager natural abilities.

Finally, many of these later immigrants have been perfectly willing to do the heavy manual labor, of which much remains to be done, even in our highly developed mechanical age. Thousands of laborers from Southern and Eastern Europe work in our steel mills and mines, dig ditches, perform manual labor in connection with our great transportation lines, and so on. Thus skilled, semi-skilled, and unskilled workers are available for

manufacturing; and, moreover, there are available plenty of persons able and willing to follow agricultural pursuits. This variety in the nature of the population has permitted the United States to make use of the principle of *specialization of labor* to a marked degree, and to a much greater extent than has been true in any other of the important industrial countries. So much for the effect of population upon *production*.

Population in Relation to Consumption.—Not only in *production*, but in *consumption* as well, has the population of the United States been unusually well suited to the development of a great industrial nation. For these peoples, while they have come from virtually all European nations, have yet been assimilated very rapidly, and with but slight delay have adopted so-called American customs. The absence of class distinctions in this country leads people, whatever their economic status, to dress similarly, to use much the same kinds of food products, and to indulge in the same sort of luxuries.

It will be recalled that during the World War, when wages were high in all lines of industry, workers were said to be indulging in silk shirts, fur coats, automatic pianos, and automobiles to an unusual extent. But it is true that, in a smaller measure, the laboring classes of the United States are making expenditures of this kind all the time. We dress so much alike that it is often almost impossible to distinguish a salesgirl from the daughter of an extremely wealthy business man; and the bookkeeper or salesman is likely to dress quite as well, so far as can be noted at a casual glance, as does the millionaire.

The Development of a "Home Market."—These illustrations go to show that we have in this country similarities of tastes and wage standards which permit us to consume huge quantities of those goods which we are continuously manufacturing, so that we need not look outside our borders for purchasers of these goods. We have built up what is termed a "domestic trade" or "home market." It is quite true that the automobile driven by the working man is not ordinarily of so expensive a make as that in which the big business man rides. It is a fact, nevertheless, that many millions of automobiles of different grades have been produced and consumed in this country; and without the demand

of the American consumer the sale of low-priced cars would be much smaller than it now is, and the prices would consequently be higher.

We have only to look about us to see that our population is producing goods and also consuming goods (luxuries as well as necessities) so that, while we have an important foreign trade, we depend mostly upon our home population to buy and use the things that are made here. This large home demand permits us to take advantage of practically all the benefits of specialization of labor and large-scale machine production.

PART TWO
EXCHANGE

CHAPTER X

THE PROCESS OF EXCHANGE

The Relation of Specialization to Exchange.—In primitive industrial society people made goods largely for their own consumption. Under conditions of specialization an individual has no intention of consuming all, or even most of his product. Specialists work with the deliberate idea of producing a *surplus* and exchanging this surplus for some other commodities and services which have been created by other producers.

The farmer cannot consume all of the food products he raises, the tailor cannot wear all the clothes he makes, the contractor has no idea of occupying all of the houses he builds, nor has the barber any use for the large number of haircuts that represent his contribution to production. But these producers, who of course are specialists, have a definite desire for other commodities and services; and so, in effect, they take their surpluses of food, clothing, houses and haircuts to other people, who give them in exchange shoes, automobiles, theatrical performances, and other economic goods which they desire.

Difficulties of Direct Exchange.—We have, then, exchange going hand in hand with specialization. Specialization would be out of the question without exchange, and exchange could hardly exist without specialization. The means by which exchange of commodities and services is effected are of several kinds. There is, for example, *direct exchange* or *barter*, which is the type resorted to in simple stages of economic society.

But barter becomes extremely inconvenient as specialization increases. Imagine, for example, the difficulties encountered by an instructor in economics who is trying by direct barter, instead of by money exchange, to convert his specialized services into other services and commodities. This teacher of economics, needing a suit of clothing, goes to a tailor, who is also a specialist, and offers

to exchange five hours of economics for one suit of clothes. But if the tailor should not be interested in economics, our instructor would not be able to make a trade; and he might have some trouble in locating a tailor who would be willing to exchange clothing for training in economic principles. There is always a danger, then, that in direct barter one of the parties in question will not care to receive what the other has to offer.

There is also the difficulty, in our illustration, of determining just how many hours of economics should be given in exchange for a suit of clothing. Perhaps one hour given by a master of the subject would be sufficient, whereas it might take a dozen hours of teaching by one who knew less of economics. The tailor, in our example, would probably not be able to decide the true value of the service which the teacher is offering, whereas the head of an economics department in a large university could appraise much more satisfactorily this particular service. Certainly the tailor would hardly be prepared to express the value of suits of clothing in terms of the many different kinds of economic goods that would be offered him under conditions of barter.

Or suppose that our instructor wishes to buy, not a suit of clothing but a plate of ice cream, shall he offer to the ice-cream dealer (say) two minutes of economic teaching? This would seem, at first thought, to be absurd, and yet he could scarcely afford to give more than two minutes in exchange for the ice cream, if his time were as valuable under a system of barter as in a money economy. And, of course, the amount of good which the ice-cream dealer would derive from a discussion of that length would probably be almost nil.

There is the further fact that the services of this instructor must be used day by day if they are to be of any good. It is impossible for him to save up his teaching for a month, and then dispose of it all in one day as he might with material goods. Consequently, we may say that his services are perishable; and this is true not only of services but also of many kinds of concrete goods throughout economic society.

Advantages of Indirect Exchange.—Because of the inconvenience of barter exchange and the impossibility of carrying it

on satisfactorily, we now usually resort to what is known as *indirect exchange* or *money exchange*. The instructor receives for his services a certain number of dollars, and then, with each of these dollars or portions of dollars, he purchases from some one else those things which he needs for his comfort and well-being. Money is, in effect, a common denominator to which we reduce all commodities and services. Its conveniences are many, as we shall note in our discussion of money in a later chapter.

One of the greatest of these conveniences lies in the fact that money will be readily accepted by all members of an industrial society. Our instructor has no difficulty at all in getting the tailor to accept money in exchange for a suit of clothing, since the tailor may readily exchange these dollars for things which appeal to him more strongly than economic training. The difficulty of splitting up his specialized service into portions small enough to buy the plate of ice cream easily has also disappeared. Instead of a few minutes of economic discussion, he pays the dealer fifteen or twenty cents from his money income. The number of transactions of these kinds which are daily taking place results promptly in a definite price, expressed in terms of money, for all commodities and services. Thus, there is no difficulty in finding out how much the instructor should give for the suit of clothing. The price is already established at, let us say, \$50.

Finally, because there is no need to search for sellers who are willing to accept economics for their goods, an instructor may dispose of his services at a central point, a college or university, to which come buyers anxious for this particular service. In the absence of money exchange, it is entirely possible that these students of economics, eager for knowledge of the subject, would come to the university prepared to pay for their instruction in potatoes, farm machinery, street paving, medical service and other kinds of desirable commodities and services which, however, would not be needed or accepted by the instructor.

Credit Exchange.—Money exchange is known as indirect exchange in contrast to barter or direct exchange. A second type of indirect exchange is that which is carried on by means of credit. Of recent years the amount of business transacted by credit has increased tremendously. Money exchange consists of giving

money in return for commodities or services, whereas credit exchange consists of giving in return for commodities and services a promise to pay at some future date. The principle, of course, is precisely the same. When money is paid for a certain article the seller receives immediate purchasing power which he may use today if he likes.

The only difference in credit exchange (that is, when a promise to pay at a future time is given) is the postponement of the actual transfer of purchasing power until the date stipulated in the agreement. Even this distinction is less important than at first sight it might seem to be, because in many instances it is possible for the seller of goods to convert the credit immediately into purchasing power by selling it to some one engaged in a particular line of economic activity—that is, in the buying and selling of instruments such as notes, or promises to pay.

The Use of Money in Exchange.—There is one point, in relation to money, which must be borne in mind throughout the entire study of economics. It has been mentioned before, but can scarcely be overemphasized. This is that money is essentially a means of exchange, and that ordinarily it is not desired for any purpose other than to exchange it for something else. If, for instance, the instructor in our example receives \$100 a week, this money is meaningless except as it provides the means to secure things which he needs or wants. In all probability, he would work without a money salary if he were guaranteed the commodities and services essential to a good standard of living. And the *number* of dollars he receives is likewise of no significance, except as it is translated into purchasing power. He would just as soon have \$50 a week as \$100, if the \$50 would buy as much as \$100. People do not desire money for the sake of the money itself, but for what it will buy.

These observations are made simply to emphasize the point that what men do is to create surpluses of commodities and services which, in the final analysis, they exchange for commodities and services created in surplus by other producers. Most of our economic thinking will be simplified if we can forget that money is ever resorted to in economic transactions. There are times, of course, when our economic reasoning relates to

money, but in most instances (as we have observed before) it has to do with commodities and services.

The Gainers Through Exchange.—The question frequently arises as to who benefits when an exchange takes place. If, for example, I trade a fountain pen for a pocket knife, do I win or does the person win with whom I make the trade? The answer is that in every fair trade both parties gain. Having voluntarily given up the fountain pen in exchange for the knife, it is obvious that I am getting something which I would rather have than the thing I give up. The same remark applies to the other party in the trade.

If, however, I should conceal the fact that the fountain pen leaks, or if the other party professing to trade a good knife in reality trades one which has a broken blade, one of the traders may get the worst of the bargain. This, however, is not a trade but a swindle, since the true condition of the pen and knife was not set forth before the transaction took place. This question of exchange will arise again in connection with our discussion of international trade. For the present, it is enough to say that exchange consists of giving up things which are desired less than those things which are received in return.

SOME AGENCIES OF EXCHANGE

In direct exchange, or barter, the surpluses of some producers are exchanged for those of others, in order that they may be consumed by persons to whom they will give greater utility than they would give to the original owners. In indirect exchange, likewise, the problem involved is the transfer of economic goods from the producer to the ultimate consumer.

Owing to the great size and complications of our modern economic society, this transfer is sometimes a very involved process, and requires the assistance of a number of intermediate agents. The process is often referred to as the "distribution of goods"; and there is no objection to the use of this term, provided only it is not confounded with the "distribution of income" (to be discussed later), which has to do with the division, among

the factors of production, of the economic goods or "product" which these factors have jointly made.

Functions Performed by Agencies of Exchange.—The parts played by the several agencies of exchange may be made clear through use of an illustration of comparatively simple exchange. A Virginia apple grower has picked and barreled his season's crop. He has, let us say, 5,000 barrels of apples to dispose of. How shall he get them into the hands of the consumer? Clearly not by direct exchange, for the delivery of small quantities of the product to many thousands of housewives would be expensive and hopelessly drawn out. Several better methods are open to him, and we may suppose that he has decided upon a plan often followed by fruit growers; that is, to retain ownership of the fruit until spring, when prices are likely to be higher than in the fall, and then to dispose of the crop through a commission house.

But this is an arrangement in which he requires assistance. He calls upon some of the agents of exchange for help. *Form* utility the farmer has already created, but *time*, *place*, and *possession* utilities must be added before the apples are available for the consumer, that is, before they have been *completely produced*. Lacking storage facilities of his own, our farmer arranges with a storage concern in Washington to hold the 5,000 barrels of apples from September until April. Thus time utility is created, for the apples will be more useful in April than in September, owing to the greater scarcity of the fruit in the spring months.

But the crop must be transported from the farm to the storage house and this necessity entails, first, a transfer by truck to a near-by railway station, then a railway shipment to the city, and finally another transfer from the Washington freight depot to the storage plant. Each of these three steps in the journey, which may or may not have been performed by separate agents, adds place utility to the product, for the apples have made progress toward the ultimate consumer.

Having running expenses to meet, such as wages of labor, taxes, and so on, the farmer secures from his banker a loan to carry him over until the sale of apples in the spring brings him an income. Since an immediate sale of the crop in the fall would have been necessary had the loan not been forthcoming, the

banker must be credited with a part in promoting the storage; that is to say, he has aided in the creation of time utility. Moreover, the crop itself or the building in which it is stored (or both) will ordinarily be insured, so that the insurance company, also, is entitled to some credit in connection with time utility.

With the coming of spring, the apples are delivered to a commission merchant, sold by him to wholesalers (perhaps in hundred-barrel lots), thence to the retailers by the barrel, and finally to the consumers by the half- or quarter-peck. The commission man, wholesalers, and retailers are all merchants, and every transaction that they carry on constitutes a creation of possession utility, since each sale brings the product closer to its final destination, which is the possession of the consumers. It is probable that, in connection with these several sales, new place utilities also were added, since a sale would usually involve the physical transfer of the goods also, in the case of a commodity such as we are now considering. (It would not be true, of course, in the sale of land—and other examples could be cited.)

In the case of many commodities, the goods would be advertised—another contribution to possession utility. Or they might be bought by speculators, in anticipation of an advance in price, which would be an addition of time utility. Very important throughout the whole process is the use of money and credit, which will be described in detail in later chapters. These various agencies of exchange, it may be said, would find little or nothing to do in a primitive society, but it is inconceivable that an extensive economic order, such as we have today, could be carried on without their assistance.

Costs of Exchanging (or Distributing) Goods.—A great deal has been written in recent years about the high cost of distributing goods, which is said to result, in turn, in the high cost of living. It is urged that the existence of large numbers of "middle-men," each demanding his share of income, needlessly increases the selling prices of many commodities.

Sidney A. Reeve,¹ a writer on economic subjects, has made an interesting comparison of the increased cost of distributing eco-

¹ Sidney A. Reeve, *Modern Economic Tendencies*. New York: E. P. Dutton and Company, 1921.

omic goods, as compared with the cost of producing them in the first place. He began by grouping together, under the heading "Productive Effort," all labor going into the creation of form utilities; and labeling "Commercial Effort" the contributions of transportation workers, salespeople, clerks, and others who spend their time getting the goods from the producer to the consumer. Using these groupings, he found that, in 1850, about 80 per cent of the effort expended in economic activities in this country was "productive," and 20 per cent "commercial." In 1880, the ratio was 63 to 37, and by 1920 the percentages were almost exactly equal. These figures show that in 1850 there were four producers for every distributor, whereas in comparatively recent years there has been but one producer for each distributor.

United States government investigations show that about one-half of the retail selling price of bread, and almost two-thirds of the price charged for corn flakes, go to distribution. From other sources we learn that of every dollar spent for the products of a well-known meat-packing house, 59 cents are used to pay costs of marketing and only 41 cents are chargeable to raw materials and costs of manufacture; and that the distribution costs of the Gillette safety razor are \$3.80 each, or approximately 75 per cent of the selling price. It is the publication of figures such as these that arouses discussion as to whether we are not paying too much to the agencies of exchange—to the so-called middlemen who transfer the goods from the farm or manufacturing plant to the consuming public.

The question is more easily asked than answered. The distribution costs of many commodities do seem to be disproportionately large. But if they are so in reality, why do not more capable business men enter the field, eliminate the wastes of distribution (if there are wastes), and thus undersell our present-day enterprisers? In some cases, the attempt is being made with varying degrees of success. But the benefits of "manufacturer-to-consumer" exchange are often more attractive in prospect than in practice.

The fact is that the consumer cannot, with any degree of satisfaction, deal *directly* with the manufacturer. If goods are to be manufactured cheaply, they must usually be made on a scale vastly larger than would be necessary to meet local needs alone.

Some consumers, then, are too remote to be able to buy at the factory. And if they purchase through stores set up by the manufacturer, they are still, in effect, buying from a retailer (a distributor), even though the shop bears a manufacturer's name.

Unquestionably, there is waste in distribution just as there is in production, and perhaps even to a greater extent; and in both instances it should be done away with as speedily as possible. But there is a tendency to underestimate the services rendered by our agencies of exchange. It is easy enough to see that the baker is a productive agent. It is more difficult to give full credit to the truckster who hauls the bread, and the grocer who sells it over the counter, simply because they are not creators of form utilities. But the promptness and convenience with which one may secure bread depend upon the services rendered by the truckster and grocer, quite as much as upon the productive effort of the baker.

"The laborer is worthy of his hire," and the "distributor" who performs a necessary function is entitled to payment. Without him, specialization as we now have it would be impossible. Perhaps the best evidence of his usefulness (though far from conclusive evidence) is our inability thus far to oust him, even though we recognize that prices are high and may suspect that the middleman is in some way responsible.

TWO ECONOMIC FALLACIES

Two misconceptions relating to exchange may be discussed briefly at this point. The first of these is frequently referred to as the "keep money at home" fallacy, and the second is the "make work" fallacy.

"Keep Money at Home" Theory.—The idea that money should be kept at home rather than spent abroad is one which has been inherited from economists of the past. The falsity of the theory has been demonstrated time and again, and yet there are today business men, politicians, and others who apparently believe implicitly in its soundness and who argue vigorously in its defense.

The theory is usually expressed in about these terms: People of a given community, whether it be a town, a state or a nation,

should buy goods at home instead of bringing them in from the outside. By buying goods at home, home industries are encouraged, local business men prosper, there is plenty of employment for workers, and as a consequence prosperity for all. But if goods are purchased away from home, there is a lack of business for the home industries, and consequently a lessened demand for workers in local shops and factories.

This is the way the argument runs, but students who have followed carefully the line of reasoning in our discussion of exchange will realize that the "keep money at home" theory is a fallacious one. Buying goods means giving money, or purchasing power, in exchange for commodities or services. And the person who receives this purchasing power will use it, in turn, to buy commodities and services which he desires.

In other words, every time we buy economic goods we indulge in a "trade," although it is more often indirect trade than direct barter. In every free trade, as we have seen, both parties benefit. It is obvious that we gain most when we spend our money where we get for it the greatest return in the way of commodities and services. If a distant merchant gives better goods than the local merchant for the same money, or the same goods for less money, certainly it is foolish for buyers to purchase their goods locally. If local industries are not able, in the long run, to compete with industries at a distance, then it would be economical to allow them to pass out of existence, since they have shown an inability to survive in the face of competition.

The people of a community as a whole are not injured by sending out money and getting commodities and services in exchange, though some individuals may suffer and be compelled to turn to new fields of production. The fact that money is spent indicates that the spenders are getting for it something which they prize more highly than the money itself. The fact that it is spent *abroad instead of at home*, shows that local sellers offer less in exchange than sellers at a distance. All that happens is that money goes out and commodities and services come in—more commodities and services than the community would have had the money stayed at home by being spent there. In other words, there is released from the home town money which has no sig-

nificance except as it is exchanged for goods, material or non-material; and there is brought into the town wealth, which is capable of immediate or future consumption, and which therefore yields genuine utilities.

Nevertheless, we are constantly admonished to "patronize the neighborhood druggist," to support local merchants instead of mail-order houses, to buy articles manufactured in the home city, and to use goods made in the United States rather than those manufactured in Europe. Political campaigns are sometimes waged on the basis of a protective tariff. And yet a tariff of this kind is simply an artificial means designed to force people to buy goods at home, rather than in a foreign country where they could be had more cheaply.

"Make Work" Fallacy.—The second error into which many persons fall has been termed the "make work" or "lump of labor" fallacy. The theory here is that there is only a certain amount of work to be done in a community, and that it should be spread out so as to keep all workers employed. If people are out of employment, it is thought by some that the wise thing to do is to create work so that they may be employed. If, for example, men are idle in the winter time, it is regarded as a great blessing to have a heavy fall of snow so that these men may be able to earn an income.

From the economic point of view, it would be much better, of course, to put them to work shoveling dirt in the building of a subway, rather than in clearing snow from the sidewalks. If it is desirable to supply work to unemployed men at all costs, one could easily justify the deliberate destruction, by fire, of all, or a large part, of the buildings of New York, Chicago, or Philadelphia. An action of this kind would provide an abundance of work for builders of all types, and would be just as sensible as praying for snow in order to give employment to the unemployed; and yet there are few who would be so rash as to suggest that the kindling of such a fire would be desirable.

The "make work" fallacy is one which is said by some students of labor problems to be an actuating force among labor unionists. Some unions definitely set an amount of work to be done in a

given time. Although labor leaders usually deny the charge, it is true that workers have sometimes decided that just so many bricks may be laid in a day, or so many cigars, and no more, manufactured in a given number of hours. A restriction of output of this kind is often caused by fear on the part of the workers that there will not be enough work to go around. Consequently, to make their work last longer they do less of it each day, although demanding, of course, a full day's pay. In like manner, they oppose the introduction of labor-saving machinery, on the ground that it would reduce the amount of employment available for hand workers.

Those who hold and express the opinions outlined above either have a mistaken notion of what exchange really is, or are arguing from the short-run point of view. The error arises through overlooking the fact that whenever commodities or services are created, they themselves constitute the purchasing power with which other commodities or services may be obtained. If, then, the unemployed got busy and made some article which the general public wanted, that article could be exchanged for the things which they themselves need. And, since human wants are capable of practically indefinite expansion, there should be plenty of opportunity for productive work, runs the argument. The difficulty, however, lies in *getting the opportunity* to make the thing which others are willing to buy. Since industry is conducted on a basis of workers employed by manufacturers and others, the workers are dependent upon employers for an opportunity to make those articles which can be exchanged for the commodities and services necessary to their well-being.

But employers will not manufacture such goods unless there is a demand for goods of this type, and oftentimes articles of a particular kind are manufactured in larger quantities than the actual demand warrants. As a result of an overproduction and accumulation of automobiles or radio sets, factories devoted to the manufacture of goods of these kinds may temporarily be closed down. This is exactly what happened in the Ford plant, and other automobile factories, several years ago. It is frequently said that there can be no such thing as *general overproduction*,

since the wants of human beings are unlimited. But there can certainly be more goods of a certain kind manufactured than will be taken readily from the market, owing to the fact that manufacturers sometimes overestimate the demand for a particular type of goods. The word "demand" is here used to include not only the desire for an economic good, but the possession of sufficient income to permit its purchase.

Whenever a man produces an article *which other people want and can afford to buy*, he creates purchasing power. For he can take his article and get in exchange for it some other commodity; in effect, he *purchases* something with the article that he has made. Therefore, there can never be overproduction, so long as he and others produce the right kinds of goods, and each kind in the proper quantity. When, a few years ago, cheap automobiles were for several months a drug on the market, the situation did not arise from too much production, but from too great production of cheap cars. If the productive power used in manufacturing the surplus stock of cheap cars had been turned into the manufacture of, say, a strikingly new and advanced model, this new car would probably have sold in large quantities to persons of wealth. Until human wants shall have been completely satisfied, there can be no such thing as *general overproduction*, though, as we have seen above, there may be and often is *misdirected production*—that is, the production of more goods of a certain kind than people wish to possess, or are able to buy.

But fine distinctions between general overproduction and misdirected production are not likely to interest a worker who is confronted by a concrete problem which may be expressed in the form of the question: "Where can I secure employment?" Though, from the social point of view, there is no economic justification for "making work," yet from the practical, individual point of view no further justification is needed than the fact that if the worker proceeds at a goodly pace, he will soon be out of a job; whereas, if he restricts his output, he may have steady, continuous employment. Furthermore, the shovelers of snow in our illustration are amply justified in giving thanks for the jobs that have been sent them; for, though the snowstorm has brought

no economic gain to society as a whole, yet these individual workers have been enabled to secure purchasing power which may be the means of warding off starvation.

Of course, if all workers in society were to increase their efforts and, as a result, their output, there would be more commodities and services for all, and the scale of living of all members of society could be raised. Moreover, there would be no difficulty in finding a demand for the additional goods, provided care were taken to produce the kinds of commodities that were wanted, since (1) human wants are far from being satisfied, and (2) every article produced constitutes in itself a demand for other articles. If production of all kinds were doubled, for example, a cigar maker who now owns an automobile could have a second car, or, if he preferred, could have in its stead a host of other less costly items, such as a radio set, a dress suit, a vacation at the seashore, and so on. These additional commodities and services would be his reward for having doubled his production of cigars.

But the scheme would work equitably only if there were a *general* increase in production. If only the cigar makers were to double their output, the effect would be a much lower price for cigars, and smokers would benefit correspondingly. But there would be no gain for the cigar makers, since the goods which they buy would not have increased in quantity, and therefore would not have gone down in price. Consequently, though it is quite true that each of us *should* produce as much as possible, there is no assurance of personal benefit unless there is a general movement in the direction of maximum production. And, from the purely selfish point of view, restriction of output may often be a wise practice to follow.

And so, in applying the label "economic fallacies" to certain theories or ideas which seem to involve unsound reasoning, we should bear in mind the fact that these theories, while fallacious from the point of economic society as a whole, and in the long run, yet, as looked at by the individual business man or worker, and considered as short-run phenomena, may be entirely sound. Since the principle of self-interest is a generally accepted principle of modern economic society, it is not surprising that in-

dividuals should sometimes follow courses of economic action that seem likely to benefit them in a material way, even though it be at the expense of the general public. We shall have occasion to note, in the course of our study, several instances of conflict between individual and social interest.

CHAPTER XI

THE PRINCIPLES OF MONEY

WE HAVE made several references, in preceding chapters, to the usefulness of money in facilitating the process of exchange. We shall now go into the subject at greater length, describing the nature of money and explaining the functions that it performs in connection with a highly developed industrial society.

MONEY IN THE UNITED STATES

Since most of our illustrations will be drawn from monetary practice in this country, it will be helpful to have before us a list of the several kinds of money that play a part in our monetary system. They are as below:

Kinds and Quantities of Money in the United States

(July 31, 1929)

Gold Coin and Bullion	\$4,340,645.415
Gold Certificates	(1,288,843.859)
Standard Silver Dollars	539,960,849
Silver Certificates	(479,006,586)
Treasury Notes of 1890	(1,281,900)
Subsidiary Silver	304,281,417
Minor Coin	120,651,798
United States Notes (Greenbacks)	346,681,016
Federal Reserve Notes	2,339,911,515
Federal Reserve Bank Notes	3,711,131
National Bank Notes	697,471,993
	\$8,693,315,134 ¹

¹ Figures in parentheses are not included in total, since they are included under "Gold Coin and Bullion" and "Standard Silver Dollars."

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Many persons who have been using money for years are surprised and somewhat perplexed to learn that we have so many kinds of acceptable currency. A few words of explanation about each of these items will help to clear up the situation. Separating the items into two groups (metallic and paper money), we shall examine them briefly. Our new grouping gives us the following outline:

I. METALLIC MONEY:

A. Gold Coin and Bullion } Full Legal Tender
B. Standard Silver Dollar }

C. Subsidiary Coin:

1. Silver:

a. Half-Dollar } Legal Tender up to \$10
b. Quarter-Dollar }
c. Dime }

2. Other Metals (Minor Coin):

a. Five-cent Piece (of nickel) } Legal Tender up to
b. Cent (of bronze) } 25 cents

II. PAPER MONEY:

A. United States Government Obligations:

1. Gold Certificates—Full Legal Tender²
2. Silver Certificates—Not Legal Tender³
3. United States Notes (Greenbacks)—Legal Tender⁴
4. Treasury Notes of 1890—Full Legal Tender

B. Bank Obligations (guaranteed by United States Government):

1. Federal Reserve Notes—Not Legal Tender³
2. Federal Reserve Bank Notes } Not Legal Tender⁵
3. National Bank Notes }

Gold Coin and Bullion.—Gold is the basis of the monetary system of the United States, and every piece of money (whether metallic or paper) is measured in terms of the "gold dollar," which contains 25.8 grains of gold nine-tenths fine. The term

² These certificates were not made legal tender until 1920.

³ But receivable by the government in payment of all public debts.

⁴ Except for the payment of import duties and the payment of interest on the public debt.

⁵ But receivable by the federal government for all public debts, except for payment of import duties.

"nine-tenths fine" indicates that the metal from which the gold coins are stamped consists of 900 parts pure gold to 100 parts of alloy. In gold coin and bullion alone are the money value and bullion value always the same. This follows as a matter of course from the fact that a gold dollar is a certain number of grains of gold, and the further fact that the government sees to it that all gold coins that are issued contain the full amount of bullion indicated by their face value.

Since gold coin and bullion are the only forms of money in our monetary system that have intrinsic value exactly equal to their money value, they constitute the only strictly *standard money* that we have. Gold is "full legal tender"; that is, creditors are required by law to accept it in payment of debt. Gold is coined in to half-eagles (\$5), eagles (\$10), and double-eagles (\$20). The gold bullion of our monetary system consists chiefly of bars of gold that have been assayed and stamped at the United States mints. Bullion is used mainly for bank reserves and the payment of balances arising through international trade. An explanation of these uses will come later.

Standard Silver Dollars.—Our so-called standard silver dollars are a relic of the bimetallic period of the country's monetary system, when the silver dollar, as well as the gold, was equally valuable as money and bullion, and was therefore genuinely "standard." The silver dollar contains 412.5 grains of silver nine-tenths fine, and is now seldom worth as bullion more than about one-half of its face value. This being the case, it might properly be placed under the classification of "Subsidiary Coins," which will be dealt with in the following section; but we have followed the time-honored custom of giving the silver dollar a separate heading.

Silver dollars are legal tender. They pass from person to person freely in the Far West, where they seem to enjoy higher favor than paper dollars; but, because of their weight and bulk, they are not popular in other parts of the country. Of the 540 million silver dollars in existence on July 31, 1929, only 43 millions were actually in circulation. The others were held in the United States Treasury, and silver certificates circulated in their stead. Though

the redemption of silver dollars in gold by the Treasury is not guaranteed, there is in practice no difficulty in securing gold for silver.

Subsidiary Coins.—Subsidiary coins are issued by the government because of the need for coins smaller than a dollar in a host of everyday transactions. Silver is used for the coins of larger values, such as the half-dollar, quarter-dollar, and dime. Its use in coins of lesser value than the dime would result in pieces of money so small as to be extremely inconvenient. Consequently, the five-cent piece and cent (which are often called "minor coins" or "tokens") are made of nickel and bronze, respectively.

Like the silver dollar, subsidiary coins are much less valuable as bullion than as money, and are consequently not standard money. But they are redeemable in standard money in lots of \$20. The silver subsidiary money is legal tender to the amount of \$10, and the minor coins only to the extent of 25 cents.

Gold and Silver Certificates.—Gold certificates bear a close relationship to gold coin and bullion, and silver certificates to standard silver dollars, for they are simply receipts certifying the actual deposit of the gold or silver, as the case may be, and guaranteeing its return upon demand. The gain to be had through the use of these certificates is of two kinds: First, paper money is regarded by most persons as more convenient than coins; and, second, the employment of certificates saves wear and tear upon (and possible loss of) the precious metals used in coinage.

Gold certificates, like gold coin, are full legal tender. Silver certificates, though they are specific claims upon the government for silver dollars, strangely enough do not enjoy all the privileges of the coins themselves. Silver certificates, for example, are not legal tender, and need not be accepted by a creditor in payment of a private debt; but they are receivable by the government in settlement of public obligations. And as a matter of practice, though not of guaranty, both silver dollars and silver certificates are readily exchangeable for gold.

United States Notes (Greenbacks).—United States notes, which are better known as "greenbacks," are a government

obligation which dates back to Civil War times. Issued in 1862, they had for a time a value of only 35 cents on the dollar. Since 1879 they have been convertible into gold, and the Treasury now has a fund of about \$155,000,000 in gold set aside for the redemption of these notes. Relatively few, however, have been presented for redemption, and they circulate quite as freely as other American money.

United States notes are now accepted in payment of import duties or interest on the public debt, though they are not legal tender for these purposes; but otherwise they are full legal tender. They are an excellent example of inconvertible paper money made convertible, and we shall refer to them again in the present chapter.

Treasury Notes of 1890.—The Treasury notes of 1890 are not unlike the United States notes described above. Both are definite obligations of the government, and both are redeemable in metallic money upon demand. Treasury notes are convertible into either gold or silver, as desired by the holder. Like silver dollars, they are full legal tender. The Treasury holds silver dollars to the extent of 100 per cent to guarantee their redemption. The relatively few Treasury notes still outstanding play but a small part in our monetary system.

Bank Notes.—The several kinds of paper money that have been described up to this point are issued by the Treasury Department, and are obligations of the United States government. Bank notes are also obligations of the government, in the sense that their redemption is guaranteed, but they are issued by national banks and Federal Reserve banks.

National Bank Notes are promises to pay to the bearer in "lawful money" (which includes all money issued by the government in denominations of one dollar or greater) the full face value of the notes that are put into circulation. Hence, a national bank note may be redeemed in gold coin, silver dollars, gold or silver certificates, treasury notes, or "greenbacks," or in any combination of the six, at the option of the issuing bank.

Bank notes are issued by a national bank only when the bank has deposited, with the Treasurer of the United States, registered

government bonds up to 100 per cent of the note issue, and in addition (for purposes of redemption) a fund of lawful money amounting to five per cent of the par value of the notes to be issued. Moreover, the issue is limited to an amount not greater than the paid-in capital of the bank. Though the notes are engraved and printed by the government, this item of expense is borne by the bank. National bank notes are not legal tender, but will be accepted in payment of all public debts except duties on imports, and must be taken at par by any national bank.

Federal Reserve Bank Notes differ but slightly from national bank notes in their nature and conditions of issue. The only important difference lies in the fact that the note issues of Federal Reserve banks are not limited, as are those of national banks, to the amount of their capital. It was the intent of the Federal Reserve Act of 1913 that Federal Reserve bank notes should gradually replace national bank notes, the latter being retired from circulation. But this change has not taken place to any appreciable degree. At the present time, the face value of Federal Reserve bank notes in circulation is considerably less than one per cent of the face value of national bank notes.

Federal Reserve Notes, despite their similarity in name to Federal Reserve bank notes, are issued on very different terms. They will be described in detail in the next chapter, but it may be mentioned now that they are secured, up to 100 per cent of their issue, either by gold or "commercial paper"; if by the latter, then the issuing bank must also maintain a gold reserve of 40 per cent for purposes of redemption. Commercial paper, it should be added, consists of notes, drafts, and other paper obligations arising out of commercial transactions. These items, also, will be dealt with later.

Federal Reserve notes are not legal tender, but are receivable at par at all banks belonging to the Federal Reserve System, and may be used in payment of all public debts. They may be converted into gold at the Treasury, and are redeemable in gold or lawful money at any Federal Reserve bank. This ready convertibility into gold makes Federal Reserve notes, for all practical purposes, just as acceptable as gold coin. Their chief function is

to supply elasticity to a monetary system which, up to 1914, was exceedingly inelastic.

THE NATURE OF MONEY

With this picture of the monetary system of the United States as a background, we proceed to a consideration of the character of money and its use in present-day economic life.

Attributes of a Satisfactory Money.—Money may be defined as "any article which is generally acceptable, and is used primarily as a medium of exchange." Some economists think it well to include in the definition a clause to the effect that it must serve also as a standard of values; but this stipulation appears to be unnecessary, since (as we shall see) no commodity could fulfill the requirements of our definition without, at the same time, serving as a standard of values. *Acceptability* is the prime essential of a good money, and this quality depends, in turn, upon a number of other attributes, namely, portability, durability, uniformity, divisibility, cognizability and stability of value.

Many commodities have been used as money in the past, but have been discarded for this purpose because they failed to possess one or more of these attributes. Tobacco, which was quite generally used as money in colonial Virginia, was too bulky and heavy to be readily portable; and it also lacked stability of value, or its purchasing power depended upon the size of the total crop, and this varied greatly from year to year. Cattle and sheep, though used by pastoral tribes, are not easily divisible, nor are they at all uniform. They could not, therefore, be used in small transactions, and values could not be expressed accurately in terms of these animals because of differences in size, weight, and quality. Corn and wheat have served as money at times, but are unsuitable for several reasons, one being the absence of durability, since grains are subject to deterioration. Precious stones also have been used, but are deficient in cognizability; that is to say, it requires an expert to tell whether they are genuine or spurious.

The influence of these attributes upon the acceptability of money should be fairly obvious. If a commodity is easily carried about (portability), if it gives promise of lasting for a long time

(durability), if a unit is like every other similar unit in value (uniformity), if the standard unit is separable into smaller units for use in minor transactions (divisibility), if every unit is marked so that its genuineness and value are apparent to the average person (cognizability), and if its purchasing power does not fluctuate greatly from time to time (stability of value), then—but not until then—does it become "generally acceptable," and meet the needs of a satisfactory medium of exchange.

Gold, Silver, and Paper Money.—Because the articles that we have mentioned above, and many others that have been used in the past, are deficient in the qualities required of a satisfactory money, their place has been taken, in most important countries, by gold, silver, and paper based upon these two precious metals. Gold and silver possess, to a high degree, the characteristics that are desirable in money. Of the two, gold has an advantage over silver, because of its greater stability of value and its higher value in relation to bulk and weight.

Gold, combining high value with slight bulk, satisfies the requirements of portability. It does not deteriorate with the passage of time, nor does it wear away rapidly through handling if hardened by the addition of an alloy. It presents no difficulties so far as uniformity is concerned. Though gold is readily divisible, its great value per unit of weight makes it unsuitable for small coins, so that silver, nickel and bronze are commonly used for making units of small denominations. When coined by a responsible government, gold is generally recognizable. It varies considerably in value from time to time, but is more stable than most commodities. Silver possesses these same qualities, though most of them to a lesser degree than does gold; and one or the other of these two metals forms the basis of every important monetary system of modern times.

The Question of Acceptability.—Our definition includes paper money, as well as metallic money, if only it is generally acceptable; and paper currency is very extensively used, and passes from hand to hand as freely as gold and silver, whenever its redemption in the precious metals is guaranteed by a government that has the ability and willingness to live up to its guaranty. But checks, drafts, and certain other negotiable papers do not fall

within the definition, largely because they lack cognizability. A check signed by Henry Ford, for example, would not be *generally* acceptable, because the average person could not be certain that the signature was genuine, and not a forgery. In like manner, a personal note (or "promise to pay") is not money, since many persons would decline to accept it on the ground that it might not be paid when due.

We have referred to stability of value as a desirable attribute of money. And it may be well, at this point, to emphasize the fact that the material of which money is made must have value in and of itself, or must be readily convertible into some such substance. Gold and silver, because of their usefulness in the arts and for purposes of ornament, are intrinsically valuable, and are desired by many persons. These metals, therefore, are generally acceptable. Paper money, on the other hand, derives its value from its exchangeability for gold or silver. When there is grave possibility that it cannot be so exchanged, paper money speedily falls into disrepute and is accepted only under compulsion.

Legal Tender.—In our survey of the monetary system of the United States, reference was made to legal tender. Money becomes legal tender when it is declared by law that a creditor must accept it in payment of debt, unless there has been an agreement to the contrary. A refusal to accept legal tender in settlement of an obligation does not mean that the debt is canceled, but simply that the debtor need not pay interest accruing after the date on which payment was proffered. The power of legal tender adds to the acceptability of money, since the person receiving it knows that it can be passed on to others in payment of outstanding obligations.

Coinage.—The coinage of metallic money, and the printing or engraving of paper currency, are almost invariably carried on either as a government monopoly or under strict governmental control. This, again, is an arrangement that contributes definitely to the acceptability of money, since it guarantees the use of metals of uniform fineness, units of standard weight, and therefore coins which will be received without hesitancy by the general populace. Coins of a given value are of uniform appearance, and are easily recognized. They are struck from excellent dies in such manner

as to render counterfeiting difficult. Not only are they stamped on both sides, but the edges of the more valuable coins are usually sharply "milled," as precautionary measures against impairment of metal content by shaving or chipping. In the manufacture of paper money, fraud is discouraged by the use of special paper, on which are printed or engraved intricate designs that cannot easily be reproduced by private individuals.

Policies of coinage differ with different countries. Occasionally a government aims to make a profit on the manufacture of money, charging more than enough to cover the costs of coinage; this is known as *seigniorage*. More often a charge known as *brassage* is made, this being an amount just sufficient to cover the costs involved. Or the system may be, as in the United States, one of *gratuitous coinage* of the standard metal. For in this country the holder of gold bullion may take it to the government mint, and there have it made into coin without charge except for the alloy which is mixed with the pure gold to give it the proper degree of hardness. Moreover, he may have it coined in *unlimited quantities*. This latter feature is known as the "free coinage" of gold.

Silver, however, is not "freely" coined in the United States; that is, silver is not coined in unlimited quantities. If it were, there would be a steady stream of owners of bullion going to the mint demanding silver coins for their metal, since silver as money is more valuable than silver as bullion. When there is need for more silver coins, they are stamped from silver bullion purchased by the government for that purpose. In the case of bank notes, the actual printing and engraving are done by the government, but the banks issuing the notes are required to pay the cost of manufacture.

THE FUNCTIONS OF MONEY

Medium of Exchange.—The primary function of money, as was indicated in our definition, is to act as a medium of exchange. When an economic society gets beyond the stage of barter, in which producers trade their surplus goods directly for goods of various kinds produced in surplus by others, the need for a satisfactory medium of exchange is apparent. Money, be-

cause it possesses the several attributes that we have enumerated, is such a medium. Being easily exchangeable for commodities that one wishes to secure, it is readily accepted in return for goods that one may have in excess and therefore wish to sell. Exchange is greatly facilitated through the agency of money, for its use permits the employment of middlemen, who, though not desiring to consume certain goods themselves, are yet willing to purchase them (giving money in return) and later sell them (receiving money in return). In this manner, the producer of farm utilities is enabled, indirectly but conveniently, to deliver his product to the consumer. Through the instrumentality of money, moreover, services may be exchanged just as readily as material goods.

It may be noted, at this point, that gold itself has almost ceased to function as a medium of exchange. Only about 10 per cent of the stock of gold coin and bullion in the United States is in active circulation. The great bulk of the country's gold supply is held in the United States Treasury, or in Federal Reserve banks, and paper substitutes are circulated in their stead. An arrangement of this kind is satisfactory so long as gold may be obtained for the paper money on demand. But the acceptability of paper money does not ordinarily extend beyond the boundaries of the country of issue. Consequently, the settlement of balances arising through international trade (to be treated later) is made in gold, on the basis of weight.

Standard of Values.—Money serves, also, as a standard of values, which is merely another way of saying that it provides us with a common denominator in terms of which all other commodities may be expressed, and their importance in exchange easily compared. The convenience of reducing all goods and services to this common unit is very great. If a garden hoe exchanges for two pounds of butter, it is possible, of course, to express the value of hoes in terms of butter, and the value of butter in terms of hoes. But it is more convenient to express both in terms of gold, saying, for example, that a hoe is equal in value to 25.8 grains of gold, and a pound of butter is worth 12.9 grains.

Better still is the practice of giving official rating and title to

a stated quantity of gold. Once the standard is well established and universally understood, values are automatically reduced to its terms. Thus the statement that hoes are selling at one dollar each, and butter at fifty cents (or a half-dollar) a pound, is instantly and completely comprehensible to any person accustomed to our monetary system. The use of this standard unit (the dollar) makes it easy to compare the values of goods to be bought and sold.

Because money functions as a standard of values, it does not follow that it possesses stability of value. Indeed, we have already noted its deficiency in this respect; but this is a shortcoming in which all commodities share, and some to a far greater degree than gold. Money is not, then, an unvarying standard of measurement such as the pound, foot, and bushel (which remain constant from year to year), but simply, as we have said, a common denominator in terms of which one may conveniently compare the values of different articles at a given time.

However, the establishment of a monetary standard, such as the dollar, does fix definitely the relative values of the several kinds of money included in the system. A fifty-cent piece, for instance, is always a half-dollar, even though its value as bullion is less than that of 12.9 grains of gold nine-tenths fine. And two half-dollars will continue to have as great purchasing power as a gold dollar, so long as the government lives up to its obligation to redeem them in gold upon demand.

Standard of Deferred Payments.—Present-day exchange consists largely of giving commodities or services, not in return for other commodities or services, or even for money, but in return for promises to pay at some future date. It is estimated that more than 90 per cent of the business of the United States is conducted on the basis of credit. But when a credit transaction takes place, some definite provision is usually made for settlement in the future and money is called upon to act as the standard of these deferred payments.

This means that an agreement is made to meet the obligation, at a specified future date, by paying in money the amount due. It is here that stability in value of money is especially desirable, since it is important that the amount of purchasing power de-

livered to the creditor when the obligation falls due should be the amount which, when the transaction took place, the debtor promised to deliver. Our study of price levels, in a later chapter, will show that, because money itself fluctuates in value, the purchasing power delivered on a deferred payment may be either greater or less than was implied in the contract, depending upon whether money has increased or decreased in value in the mean time. The fact remains, however, that money is the standard generally used; and it will continue to perform this function until the business world has been convinced of the advantages of one or other of several new standards that have been proposed for the purpose.

Basis of Credit.—It is difficult to grasp the significance of money as a basis of credit without understanding the fundamentals of our system of banking, which will be described in the next chapter. It may be said, however, that the adoption of a standard money, and its use as a reserve, permits the safe circulation of a volume of paper substitutes vastly greater than the original amount of standard money. We shall see, for example, that for every gold dollar deposited as security with a Federal Reserve bank, there is the theoretical possibility of expanding credit to the extent of \$28.50. This element of elasticity is one which was not fully appreciated in this country prior to the adoption of our Federal Reserve System in 1914. It means, however, that as business expands the volume of credit increases to meet its requirements, decreasing again when so much credit is no longer needed.

MONETARY STANDARDS

Standard Money.—Standard money, in the strict sense of the term, is such money as contains an amount of metal necessary to make its value as bullion exactly equal to its value as money. If a country used nothing but standard money, there would never be any question about its acceptability, so long as the standard metal was desired on its own account. For the coin could be converted into bullion by the simple process of melting; and the bullion, in turn, could be turned readily into money, if a

system of free and unlimited coinage (such as we have in the United States) were in effect.

Measured by the above definition, gold coin and bullion constitute the only standard money in this country. Silver dollars, though they were once standard and are still called by that name, are greatly underweight, and so, also, are all subsidiary coins. Paper money, of course, possesses very slight intrinsic value. And yet one form of paper money, the gold certificate, is in every practical way standard money. For a gold certificate is virtually a "warehouse receipt," upon presentation of which gold coin or bullion will be paid immediately, since for every certificate outstanding there has actually been deposited, and is now held subject to demand, its equivalent in gold.

Forms of United States money other than gold and gold certificates may be called "credit money," since they represent promises to pay. This statement applies to shortweight metallic money as well as to paper money.

Monometallism.—The monetary standard of the United States is monometallic. Since gold is the basis of our monetary system, we are said to have a "gold standard." The standard unit that has been adopted is the gold dollar, containing 25.8 grains of gold nine-tenths fine; there is free and unlimited coinage of this metal; there is no prohibition on melting or exporting gold coins; the gold dollar has been declared full legal tender; and all other kinds of United States money are convertible, directly or indirectly, into gold coin.

Experience has shown that even though a monetary system is started on some other basis, it inevitably becomes monometallic as the years pass, for reasons that will be given in the following section. As a result, we find that monometallism is a world-wide phenomenon, and in most countries of economic importance the standard metal is gold.

Bimetallism.—But most governments, before finally adopting monometallism, have had some experience with a bimetallic standard. Under bimetallism, both gold and silver are coined freely and in unlimited quantities, and both are full legal tender. As in the case of monometallism, there is no prohibition of melting or exportation. In setting up a system of bimetallism, it

is necessary to decide upon a *mint ratio* to express the relative values of the two metals when used as money. The ratio adopted is naturally one that conforms very closely to the *market ratio*, which expresses the terms on which gold and silver exchange as bullion. If one ounce of gold, as metal, commands sixteen ounces of silver bullion in exchange, the market ratio is 16 to 1; and the same figures would ordinarily be chosen, at the outset, for the mint ratio.

So far, so good. And if the market ratio remained constant indefinitely, or the mint ratio could be manipulated so as to duplicate changes in market value, all would be well. But the market values of gold and silver, as of all commodities, depend upon the general conditions of supply and demand. Since both are constantly being mined, but in varying quantities, their values are constantly changing, the market ratio being at one time (say) 17 to 1, and again, 15 to 1. Nor is it feasible to change the mint ratio frequently so that it will conform to the market ratio. For this would mean, among other difficulties, the circulation of coins alike in face value, and yet different in their metal content.

Overvalued and Undervalued Money.—Because of the variability of the market ratio and the fixity of the mint ratio, it is next to impossible to maintain a bimetallic standard over a long period of time. If, for example, an exceptionally large amount of gold were mined in a given year (without any increase in demand), the value of the metal would fall, and the market ratio between gold and silver might change to 15 to 1, instead of 16 to 1. Gold coin would then be *overvalued* at the mint; that is, gold as money would have a greater value than gold as bullion. As a consequence, gold only (and not silver) would be presented at the mint for coinage, since one ounce of gold bullion would exchange for fifteen ounces of silver on the market, while an ounce of gold would continue to command sixteen ounces of silver at the mint.

Naturally, each metal will be used where it may be employed most advantageously. It would be profitable, under the circumstances that have been described, to take gold bullion to the mint; exchange it there (as one is legally entitled to do) for

sixteen times its weight in silver coins; pocket one-sixteenth of this number; buy on the market, with the remaining fifteen-sixteenths, as much gold bullion as was originally held (which is possible because of the lowered market value of gold); carry this bullion to the mint to be coined; and so on.

Each time the operation is performed, one would gain the difference between the market ratio and the mint ratio of gold. Since silver, under the conditions assumed, is more valuable as bullion than as coin, there will be a tendency, on the part of holders of silver coins, to melt them down and dispose of them in the form of bullion. This would be feasible, since both gold and silver coins are "full weight" under a bimetallic system. Thus the undervalued metal (silver) would pass out of circulation, and only the overvalued (gold) would remain to serve as money.

If, on the other hand, the market ratio became 17 to 1, owing to a slump in the value of silver bullion, the situation would be reversed. Silver bullion would then be brought to the mint and exchanged there for gold coins; a part of the gold retained as profit and silver bullion purchased with the remainder; this bullion carried to the mint; and the performance repeated until gold money had completely disappeared from circulation.

Gresham's Law.—This tendency for an overvalued money (sometimes called "cheap" or "inferior" money) to drive undervalued (or "dear" or "superior") money out of circulation, is commonly known as "Gresham's Law." The law is effective only when there are free and unlimited coinage of both metals, free melting, and full legal tender of both gold and silver. Moreover, the quantity of the overvalued money must be sufficient to meet the needs of business transactions; otherwise the two may circulate side by side.

There are many illustrations of the operation of Gresham's Law. An example, which illustrates that the law is applicable to paper money as well as to gold and silver, is to be found in the circulation of greenbacks, during and following the Civil War. From 1862 to 1879 these notes were not redeemable in gold. Though they had been declared legal tender, greenbacks were generally regarded as distinctly inferior to silver and gold.

Persons having in their possession both metallic money and greenbacks, held fast to the metal and paid in paper. Since sufficient greenbacks had been issued to carry on business operations, gold and silver were withheld from circulation and paper money was used almost exclusively. Inferior money had driven superior money out of circulation.

GOVERNMENT PAPER MONEY

Paper money is of three kinds: representative, convertible, and inconvertible. We shall examine briefly their main points of difference, with illustrations drawn chiefly from monetary experience in the United States.

Representative Money.—Representative money is a receipt for, and promise to return upon demand, a specified amount of metallic money which has been intrusted to a responsible public authority, by whom it is to be held until called for. Thus, United States gold and silver certificates are receipts for, and claims upon, gold and silver coins that have been deposited with the Treasurer of the United States.

These certificates are frequently classified as convertible paper money, and rightly so, since they are convertible beyond all doubt. But they differ from other types of convertible money in that they are backed, dollar for dollar, by the actual coins in which they are redeemable. Moreover, gold and silver certificates are used purely as substitutes for metallic money, and not (like bank notes) as devices for increasing the amount of currency in circulation. As we have already observed, they have the advantage of being more convenient in handling than the metal; and their use prevents wear and tear on the coins themselves.

Convertible Paper Money.—The convertibility of paper money rests upon the maintenance of an adequate reserve which may be drawn upon if redemption is demanded. All of the paper money now in use in the United States is convertible, directly or indirectly, into gold. But so ample are the reserves from which redemption could be made that there is little likelihood of an extensive demand for standard money in place of paper; for,

strangely enough, redemption of paper money is seldom desired unless there is fear that redemption, if requested, will be refused.

We have seen that the payment of gold and silver certificates is fully assured by the maintenance of a 100 per cent deposit. Gold to the amount of 43 per cent is held as a reserve against the outstanding United States notes, or greenbacks. Treasury notes of 1890 are backed by silver, dollar for dollar, and the gold fund assigned primarily to United States notes could be used, if necessary, for the redemption of Treasury notes. National bank notes and Federal Reserve bank notes are secured by government bonds to the extent of 100 per cent, plus five per cent in lawful money. And back of Federal Reserve notes are a minimum of 40 per cent in gold and at least the remainder of the 100 per cent in commercial paper. Furthermore, their payment is guaranteed by the United States government.

Convertible paper money, like representative money, is more convenient than coin, and its use saves loss of metal through wear and tear. But more important is the part it plays in supplementing metallic money, permitting the expansion of the monetary system while economizing in the use of gold and silver. This function of paper money, and particularly the elasticity provided by Federal Reserve notes, will be discussed in the next chapter.

Inconvertible Paper Money.—Inconvertible paper money is currency which has no value in itself and is not redeemable in standard coin, but circulates only by authority of a government. According to one well-known writer, inconvertible money is used "because the people have no better money, and the quantity is so limited that its evils do not yet appear, or because the government is strong enough to compel its citizens to accept the paper."⁶ Inconvertible money (or "fiat" money, as it is often called) is usually made legal tender; this fact and the confidence that people have in the promises of their government are sufficient explanation of the acceptability of a money that cannot be redeemed in coin or bullion.

Fiat money is most often issued in time of great emergency, such as war, when the printing of money appears to be the

⁶ David Kinley, *Money*, p. 332. New York: The Macmillan Co., 1904.

easiest way (and sometimes, indeed, the only way) to secure funds with which to meet necessary expenses. The Civil War was responsible for the issuance of greenbacks, and the World War brought upon European countries a veritable deluge of fiat money. Inconvertible money sometimes becomes convertible, as was the case with the greenbacks after an interval of seventeen years. But Russia, Germany, and Austria printed paper money in such tremendous quantities, in order to meet war and post-war needs, that redemption was out of the question and the notes were repudiated. France, facing a problem that was similar but not so serious, chose to "stabilize" the franc at a fraction of its former gold value. But this, in effect, was repudiation of a large part of the obligation represented by the paper money outstanding.

A serious difficulty with fiat money is the grave likelihood of overissue, once the practice of printing this kind of money is resorted to. And when sufficient fiat money has been issued to serve as exchange media for all business transactions, fiat money alone will be used. Since it is customary to endow such money with the power of legal tender, it will theoretically circulate on a par with gold. But gold will not, in actual practice, be employed at all, if an abundance of "cheap" paper money is available. On the contrary, as is stated in Gresham's Law, it will disappear from circulation, part of it being used in foreign trade, where its purchasing power is greater than at home; part being made into articles of utility or ornament; and part being stored away against the time when it can again be used to advantage in domestic trade.

Maintenance of Parity of Money.—The Secretary of the Treasury is charged with the duty of maintaining all forms of United States money at a parity of value with the standard unit, the gold dollar. It is possible to circulate inferior money at par, if it is made legal tender and is properly limited in quantity. But the surest means of maintaining the parity of money is to make it convertible in standard coin. This is the situation in the United States at this time. Since money of all kinds is redeemable, directly or indirectly, in standard gold dollars, there is no

question about its value; and, as a consequence, paper money and underweight subsidiary coins alike are quite as acceptable as standard gold coin itself.

A *United States dollar* is 25.8 grains of gold nine-tenths fine.

Standard money (in the United States) is money which contains a quantity of metal such that its value as bullion is equal to its value as money.

Lawful money (in the United States) consists of all money issued by the government in denominations of one dollar or more.

Legal tender is "money of a character which by law a debtor may require his creditor to receive in payment in the absence of any agreement in the contract or obligation itself."

Free coinage is the coinage of bullion in unlimited quantities (though not necessarily without charge).

Gresham's Law: Overvalued money tends to drive undervalued money out of circulation.

THE PLACE OF CREDIT IN BUSINESS

THE primary function of money, as we saw in the last chapter, is to serve as a medium of exchange. Not only standard money but "credit money" (underweight coins and paper money) are useful in the performance of this function. But money, whether standard or credit, plays only a small part in the actual business transfers of the country, when compared with such "credit instruments" as checks and drafts. Gold, when used as a reserve against other kinds of circulating media, is a more vital factor in the business world than it could possibly be as an active medium of exchange. For its use in this way permits the circulation of a vast quantity of credit which is constantly employed in furthering business activities. It is a fair estimate to say that fully 90 per cent of our business operations are carried on through the use of substitutes for money. The check is, in present-day business, the most important of money substitutes.

TWO KINDS OF BUSINESS CREDIT

Investment Credit.—The need for credit arises largely from the fact that production is carried on in anticipation of demand. This means that many of the costs of production must be borne for some time before any return is realized by the sale of the product. If a silk loom is about to be discarded, then the part contributed by this loom to the last yard of cloth that is woven is a cost of production which was met perhaps some twenty years before the sale of the silk cloth. The ability to conduct an enterprise and the possession of large capital do not always go together. Frequently, then, enterprisers are obliged to put their ideas to work, not with their own resources but with the aid of borrowed capital.

Let us suppose, for instance, that William Johnson is a man of business vision, with confidence in the future of commercial aviation, but with no capital of his own. Obviously, he must secure credit if he is to go into the business of manufacturing airplanes. The buying or leasing of land, the construction of a factory building, and the purchase of machines and tools, require capital in considerable amounts. Moreover, this capital will be "tied up" for a long period of years, being invested in plant and equipment designed for a particular purpose. What our would-be enterpriser needs is *investment credit*; that is, *long-time* loans, amounting to *large sums*, to be put into *fixed* capital. Such loans are usually secured through the issuance of bonds and shares of stock.

Commercial Credit.—Even after the business is well established and is operating on a profitable basis, there will be times when Mr. Johnson will wish to borrow what is known as "working capital." There are certain running expenses that must be met promptly, raw materials to be purchased, wages to be paid. And even though the books show a handsome profit, funds may be tied up temporarily in the form of goods manufactured and on hand, or planes sold to customers but not yet paid for. However, the running expenses of the company must be met, and without delay, so that an appeal is made for *commercial credit*, which consists of *short-time* loans, of relatively *small amounts*, to supply *circulating* capital.

SOME IMPORTANT CREDIT INSTRUMENTS

Book Accounts.—Our suggestion that some of the planes that were sold had not yet been paid for, indicates that Mr. Johnson is extending credit to his customers, probably through the book account. The book account is quite common in business, though it has been severely criticized for reasons which we cannot enter into here. There is little or no credit mechanism involved in the process. Let us suppose that, in order to dispose of a substantial number of planes held in stock, the Johnson Airplane Company agrees to deliver one dozen airplanes to the New York-Jackson-

ville Transit Corporation, waiting sixty days for payment, or allowing two per cent discount for cash in ten days. This item now stands as a book account on the records of the Johnson Company, to be canceled as soon as payment is made.

Promissory Notes.—Or the transaction might be effected through the use of a promissory note. This is an agreement to pay, "for value received," a stated amount of money at a specified time and place. Figure 11 gives an idea of the appearance of a note. When properly endorsed, a note becomes "negotiable," that is, it may be bought and sold. It is probable that Mr. Johnson, upon receipt of this note, would immediately endorse it (by signing his name on the back of the note) and have it dis-

\$60,000 ^{xx}/₁₀₀ New York, N. Y., October 1, 1930
 Sixty days after date we promise to pay to
 the order of Johnson Airplane Company
 Sixty Thousand ^{xx}/₁₀₀ Dollars
 at THE NATIONAL CITY BANK OF NEW YORK
 New York-Jacksonville Transit Corporation
 WITHOUT DEFALCATION
 VALUE RECEIVED
 by J. B. James, President

Fig. 11: A PROMISSORY NOTE

counted at his bank. The process of discounting consists of the bank deducting in advance the interest charge for sixty days, and placing the remainder to the credit of the Johnson Airplane Company. This company is then in a position to write checks against its account with the bank, to the full amount of this credit. Figure 12 shows the form in which checks are written. An endorsement on a promissory note or check makes the endorser responsible for its payment, in case the drawer of the instrument fails to meet his obligation.

Drafts, Bills of Exchange, Trade Acceptances.—Another device used in extending credit is the *draft*. This instrument appears under several names, such as *bill of exchange*, *trade acceptance*, and so on. The method of using the draft, also, is

not entirely standardized. Sometimes the draft is accompanied by a bill of lading, warehouse receipt, or other claim upon property; sometimes, again, it travels alone. At times, the transaction is handled through a *bank draft*, which is an order drawn by

No. 5432 New York, N. Y., October 4, 1930
 CORN EXCHANGE BANK TRUST COMPANY
 Pay to the order of United States Steel Corporation
 Eighteen Thousand Five Hundred and ^{xx}/₁₀₀ Dollars
 JOHNSON AIRPLANE COMPANY
 By William Johnson
 Treasurer

Fig. 12: A BANK CHECK

one bank on another. In all cases, however, the general principle is the same. A draft is an order written by one person to another, asking that a specified amount of money be paid, sometimes (though not always) on a stated date.

TRADE ACCEPTANCE
 Standard Form Approved By
 AMERICAN ACCEPTANCE COUNCIL
 New York
 No. 463 New York Oct. 1, 1930
 On November 30, 1930 Pay to the order of ourselves
 Sixty Thousand ^{xx}/₁₀₀ Dollars (\$60,000 ^{xx}/₁₀₀)
 The transaction which gives rise to this instrument is the purchase of goods by the
 acceptor from the drawer. The drawer may accept this bill payable at any bank, banker
 or trust company in the United States which such drawer may designate.
 To New York-Jacksonville Transit Corporation Johnson Airplane Co.
 (Name of Drawer) (Signature of Drawee)
 New York, N. Y. By William Johnson
 (City of Drawer)

Fig. 13: A TRADE ACCEPTANCE (one form of the draft)

The business transaction that we have been using as an illustration might give rise to the type of credit instrument shown in Figure 13. This is a form of draft, the trade acceptance, ordering the New York-Jacksonville Transit Corporation to pay to

the Johnson Airplane Company, in sixty days, the amount due by reason of the purchase of twelve planes. This trade acceptance, or draft, is forwarded to the Transit Corporation, and the Corporation "accepts" it by writing across the face of the instrument the word "Accepted," the date, the name of the bank at which it will be paid, and finally the signature of a responsible official. Not only trade acceptances, but drafts of all kinds, are "accepted" in this way.

Thus endorsed, the trade acceptance is negotiable, and may be readily discounted. The statement that "the transaction which gives rise to this instrument is the purchase of goods by the acceptor from the drawer" makes the paper acceptable at Federal Reserve banks. The Federal Reserve System is designed to aid only in the financing of legitimate short-time business operations; and the statement that we have quoted is inserted as evidence that the proceeds of this trade acceptance have not been used for a permanent investment, nor yet for one of a purely speculative character.

A draft, when accepted by the drawee (the person to whom it is addressed) becomes virtually a promissory note. If Mr. Johnson, on behalf of his concern, discounts the trade acceptance shown in Figure 13, he must himself endorse it (as he did the promissory note illustrated in Figure 11), and it thus becomes "double-name paper." This means that the amount advanced to the Johnson Airplane Company, on the strength of this instrument, will be charged back to the company if the New York-Jacksonville Transit Corporation does not make payment at the stated time.

COMMERCIAL BANKING

The ability of banks to issue "credit money" in the form of bank notes was noted in the preceding chapter. Bank notes have at times held a prominent position in our monetary system, and are still of considerable importance. But the amazing growth of "deposit currency" (or "check currency") as an instrument of credit, has forced bank notes into a distinctly secondary position.

Deposit currency consists of credit which is set up with one or other of the several kinds of commercial banks, and brought into circulation through the agency of bank checks (see Figure 12).

The Currency Structure.—The circulating media of the country includes, then, not only standard money (gold) and supplementary money (underweight coin and paper money), but a vast quantity of deposit currency as well. The relative importance of these items will be apparent upon examination of

Deposit Currency \$24,350,164,000 (74% of total)
Supplementary Money \$4,214,445,337 (13% of total)
Gold Coin and Bullion \$4,324,350,860 (13% of total)

Fig. 14: CURRENCY STRUCTURE OF THE UNITED STATES¹ (June 30, 1929)

Figure 14. It is shown here that, on July 30, 1929, approximately 74 per cent of the \$33,000,000,000 of circulating media in the United States was in the form of deposit currency; that is, three-quarters of the total was in the form of bank deposits, payable on demand by check. The remaining 26 per cent was fairly evenly divided between gold and supplementary money.

Bank Notes.—Supplementary money, it must be remembered, is credit money, since its intrinsic value is less than its value as

¹ From *Annual Report of the Secretary of the Treasury, 1929*. Washington: United States Government Printing Office, 1930.

money. Without dealing further with that part of supplementary money that is made up of direct government obligations, we shall examine briefly the nature of bank notes and the circumstances under which they are issued.

They are, in fact, nothing more or less than promissory notes, payable to the bearer on demand. The payment of these notes is almost never requested, for the reason that the ability of the bank to meet its obligation is seldom called into question. This confidence, in turn, depends upon the security back of the bank notes, which, it will be recalled, consists of a deposit, with the Treasurer of the United States, of registered government bonds to the amount of 100 per cent of the issue, and also a redemption fund of five per cent in lawful money kept in the United States Treasury.

It is commonly said that commercial banking consists chiefly of exchanging bank credit for personal credit. This exchange is attractive to the individual, because it results in the greater acceptability of the credit instrument. A personal promissory note, for example, is usually not nearly so acceptable as the promissory note issued by a bank in the form of a bank note. The personal note would be receivable only by those who know the individual who has executed it, and are satisfied of his ability to meet the obligation. But the bank note is *generally* acceptable.

The exchange of bank credit for personal credit is welcomed, also, by the bank that issues the notes. For by lending out the notes at interest the bank makes a profit, and it also receives an income from the government bonds deposited in the United States Treasury. In this way the capital of a bank is made to do extra duty. But the gains to be realized through the issuance of notes are not so great as they might at first sight appear to be, since the government bonds that are available as security against bank note issues pay only two per cent interest, and there are certain expenses that must be met by the issuing bank. At the present time, with these bonds selling above par, the banks gain only three-tenths of one per cent through the issuance of bank notes. If, on the other hand, the value of the bonds should drop below par, the gains would be greater. On this account and because of real or imaginary publicity value of note issuance,

some three-fourths of the national banks exercise their privilege of putting bank notes into circulation, despite the almost negligible material gain.

If there were no restraints placed upon the issuance of bank notes, it is probable that some banks would be tempted to increase their issues unduly, and thus possibly render their notes inconvertible. Hence, the definite conditions of issue, including the deposit of bonds through the sale of which the government can pay off the notes, should the bank fail to do so. Federal Reserve notes, which are issued on a different basis, will receive attention later in the present chapter.

Bank Deposits.—Bank notes and Federal Reserve notes combined come to a total of about three billion dollars. But deposit currency, put into use through checks, provides at least eight times as much circulating media. The deposit currency in the United States available on June 30, 1929, amounted to something more than \$24,000,000,000. It is estimated by Carl Snyder, of the Federal Reserve Bank of New York, that this huge amount of deposit currency has a "turnover" of twenty-five to thirty times a year. For, although these deposits are being continually depleted by checks written against them, they are also added to continually from several sources.

One of these, which is of relatively slight importance, is the deposit of money, checks, money orders, and so on, by means of which individuals and business concerns increase their balances, and against which they draw their checks as occasion arises. Much more important are the deposits that arise through the process of discounting or "buying" commercial paper, such as promissory notes and the several kinds of drafts. When William Johnson discounted the promissory note or trade acceptance of the New York-Jacksonville Transit Corporation, his bank paid the Johnson Airplane Company the amount due in one of two forms—either in bank notes or a bank deposit. If notes were received, Mr. Johnson, in using them in the payment of bills, was distributing bank credit in place of personal credit. If the bank simply credited the account of the Johnson Company with the amount due, there was again an exchange of bank credit for personal credit, since bank deposits, like bank notes, are promises

of banks to pay money on demand. And the Johnson Airplane Company, paying bills with checks drawn against a bank account, was again distributing the bank's implied promises to pay in place of their own.

It is worth while to emphasize the fact that commercial banks deal mainly in short-time obligations, and this is one reason that the fund of deposit currency is being continually replenished. Mr. Johnson's bank *may* be required to pay out money every time one of his checks comes in for payment; though in many cases the person presenting the check will merely ask the bank to place the amount to his credit, so that *his* account may be increased. But in either event, the bank will be extending credit to Mr. Johnson for only sixty days, for at the end of that period the New York-Jacksonville Transit Corporation will be required to meet its obligation in full. Since a bank handles thousands of transactions such as this, its credit resources are in a state of constant flux, being in process of depletion through daily withdrawals, but being replenished all the while by daily deposits.

Bank Reserves.—But here, again, is a temptation to allow the extension of credit to go beyond the point of safety, for with each new loan a profit is realized. It would be disastrous, however, for a bank to be unable to pay a legitimate claim that is presented against it, since failure of this kind would result in the bank closing its doors. Consequently, it has been the custom in this country to provide, by law, that reserves of a specified percentage be held against demand and time deposits. In the case of state banks not members of the Federal Reserve System, the amount of the required reserve is regulated by state legislation, and differs somewhat from state to state. The amount that must now be held in reserve by state and national banks belonging to the Federal Reserve System against demand deposits is 13 per cent for banks in New York and Chicago, 10 per cent for those in cities of medium size, and 7 per cent for small-town banks; the reserve required against time deposits is 3 per cent in all cases. The reserve is deposited with the Federal Reserve bank of the district in which the member bank is located.

These reserves may appear, at first sight, to be absurdly small;

but experience has shown that they are entirely adequate, for, so long as confidence is maintained, there is very little chance of depositors making a concerted demand upon the member banks for payment of the amounts due them. Furthermore, as our study of the Federal Reserve System will show, provision has been made for rendering "first aid" to any member bank that is threatened by a "run"—that is, by a demand for cash on the part of a large number of depositors.

The Clearing House.—The check shown in Figure 12 is drawn on the Corn Exchange Bank Trust Company, in favor of the United States Steel Corporation. If the Steel Corporation happens to have an account in this particular bank, it will, in all probability, simply endorse the check and deposit it. The bank thereupon debits the Johnson Airplane Company with \$18,500, thus decreasing that company's deposit account, and credits the United States Steel Corporation with the same amount. In this way a payment is effected without any transfer whatsoever of actual money. All that has been done is to make a book transfer.

If the Steel Corporation should be doing its banking business with another institution, say the Chase National Bank, it would still make no direct appeal to the Corn Exchange Bank for payment of the check in cash. In this case, the check would be endorsed and deposited with the Chase National Bank, and this institution (and not the Steel Company) would proceed to make collection. Time was when the procedure followed was to send out daily a "runner," or messenger, from one bank to another, to make collection in cash for credits that had accumulated in the course of the previous day's business. The second bank would likewise send a representative to the first bank, to receive payment of any amount that might be due by reason of credit instruments held against this bank. It is obvious that this duplication of effort meant waste, and as banks increased in number the expenditure of time and effort increased at a still faster pace.

But this method of collection has long since given way to the "clearing house." This is a central agency, the main purpose of which is to effect daily settlements between the banks of a given area. If the Chase National Bank has claims against the Corn Exchange Bank, it is likely, also, that the Corn Exchange Bank

has claims against the Chase National. Similar relationships exist between practically all banks of importance in any given city. In order to compare claims and make settlements, representatives of the various banks meet at the clearing house at designated hours every day. Each representative, or "settling clerk," presents the claims of his bank against other institutions, and receives in turn the claims of the other banks against his own. A balance is struck, either debit or credit, and the amount due is paid by the bank to the clearing house or by the clearing house to the bank, as the case may be.

Since total debits are bound to equal total credits, the clearing house finds itself, at the end of the day, exactly where it started. And yet, through a process of bookkeeping, it has managed to adjust the credit claims existing between all of its members. The expenses of the clearing house are borne by the member banks, each paying an amount determined by its average "clearings" in relation to the total. But these expenses are comparatively slight, for the clearing house provides a very economical means of settling claims between banks. Though the volume of clearings in cities like New York and Chicago is enormous, the transactions are carried through with a surprisingly small transfer of actual money. In some cities the balances that must be paid are as small as 5 or 6 per cent of the total clearings. In New York, in the year ending September 30, 1929, there was an average daily balance of \$166,000,000 as against daily clearings of about \$1,508,000,000. In this case, the percentage of balances to clearings was 11.04.² It should be added that banks may, and often do, pay their balances by drafts on the Federal Reserve banks of their districts. There are in all about 325 clearing houses in the United States.

Out-of-town checks are "cleared" (or collected) very largely through Federal Reserve banks. If, for illustration, a merchant in Leesburg, Virginia, buys goods from a wholesaler in New York City, paying with his check drawn on the Peoples National Bank of Leesburg, collection would be made in something like the following manner. The wholesaler first takes the check, properly endorsed, to his bank in New York. This bank deposits

² *Ibid.*, p. 765.

it for collection in the Federal Reserve Bank of New York. The check is now forwarded to the Federal Reserve Bank of Richmond. The Federal Reserve Bank of Richmond sends it to the Peoples National Bank of Leesburg. The Peoples Bank now settles with the Federal Reserve Bank of Richmond. Upon receipt of this settlement, the Richmond bank immediately credits the Federal Reserve Bank of New York; and the New York bank, in turn, credits the wholesaler's bank. The collection is now complete.

It is estimated that some 95 per cent of all out-of-town (or "country") checks are collected in this way. "The twelve Reserve Banks handle over two and one-half million checks a day for collection, with a value of about \$900,000,000."³ "For settlements between the Reserve Banks there has been set up that ingenious device, the gold settlement fund, lodged in Washington with the Federal Reserve Board, and represented by a gold credit on the books of the Treasurer of the United States. This fund is owned by all the Federal Reserve Banks, and settlements between Reserve Banks are daily effected by bookkeeping entries, on telegraphic advice, changing the proportion of the gold fund which the different banks own."⁴ It will be observed that this is an arrangement similar in principle to the ordinary clearing house, but operating on a much larger scale.

Growth of Bank Deposits.—The increasing popularity of deposit credit is indicated in Table IV, which gives the bank

TABLE IV: BANK DEPOSITS (OTHER THAN SAVINGS DEPOSITS) IN THE UNITED STATES, 1910 TO 1929

1910.....	\$ 8,447,903,000
1915.....	10,153,480,000
1920.....	22,001,062,000
1925.....	23,631,890,000
1927.....	25,041,647,000
1929.....	24,350,164,000

deposits, other than savings deposits, in the United States, for certain years from 1910 to 1929. Savings deposits are excluded from the table for the reason that they come under the heading of investment credit rather than commercial credit. These figures are shown graphically in Figure 15.

³ W. Randolph Burgess, *The Reserve Banks and the Money Market*, p. 79. New York: Harper & Brothers, 1927.

⁴ *Ibid.*, pp. 72, 73.

Commercial credit is supplied, through deposit accounts, by national, state, and private banks; and most trust companies also engage in a general banking business. In 1928, the total number

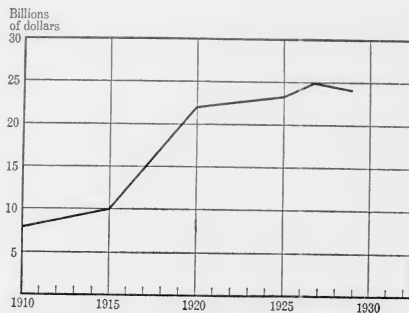


FIG. 15: BANK DEPOSITS (OTHER THAN SAVINGS DEPOSITS) IN THE UNITED STATES, 1910 TO 1929

of such institutions in this country was 24,750, distributed as below:

National banks	7,635
State (commercial) banks	15,078
Loan and trust companies	1,633
Private banks ^a	404
Total	24,750

THE FEDERAL RESERVE SYSTEM

The Federal Reserve Act was passed in 1913, and the Federal Reserve System began operations in the following year. Its purpose was to substitute a somewhat centralized system of banking

Private banks are sometimes banking organizations in country towns, and, again, are large city institutions dealing in securities, foreign exchange, stock market transactions, and so on.

for a highly decentralized one, with the thought that the change would bring elasticity of credit and greater security. How these objects were attained will be discussed after we have sketched briefly the structure of the system.⁶

Federal Reserve Banks.—The basis of the system is twelve Federal Reserve banks, located in twelve important cities of the country. There is one Reserve bank to each of twelve Federal Reserve "districts," as is shown in Figure 16; and most of the

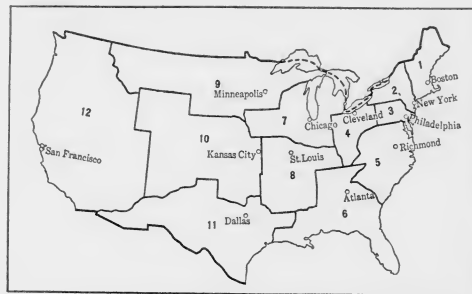


FIG. 16: FEDERAL RESERVE DISTRICTS AND CITIES IN WHICH RESERVE BANKS ARE LOCATED

districts have in addition one or more Federal Reserve "branches," for the convenience of banks situated at some distance from a main Reserve bank.

The Federal Reserve banks are not government banks, nor yet are they ordinary commercial banks. They are often referred to as "bankers' banks," a term used to indicate their ownership by "member banks" of the districts in which they are located. It is important to note that the policies of these banks are molded in the interests of public welfare, and not for purposes of private gain. Dividends are limited to six per cent; and all profits over and above this amount (with the exception of a specified accumu-

⁶Our treatment of the Federal Reserve System is based largely upon *The Reserve Banks and the Money Market* (already cited), which gives a clear account of the organization and operation of this recent development in American banking.

lution of surplus) go to the government as a tax for the privilege of operation.

Member Banks.—Every national bank is required to take out membership in a Federal Reserve bank, and any state bank or trust company is eligible if it has a capital of \$25,000 or more. In acquiring membership, a bank must subscribe to stock in its Federal Reserve bank to the amount of six per cent of its own capital and surplus. It must also deposit all of its legal reserves with the Reserve bank. The reserves against demand deposits (as we have already seen) are 13, 10, or 7 per cent, depending upon the size of the city in which the member bank is located. A 3 per cent reserve is required against "time deposits," which comprise all deposits that are payable at a time at least as far distant as thirty days.

On December 31, 1928, there were 8,837 member banks, with total resources of about \$49,000,000,000. This number represented only one-third of all the banks in the United States, but their resources amounted to two-thirds of the country's banking power.

The Federal Reserve Board.—General supervision and control of the Federal Reserve System is intrusted to the Federal Reserve Board. This body consists of eight members, and has its headquarters in the Treasury Building at Washington. The Secretary of the Treasury and the Comptroller of the Currency are *ex officio* members of the Board, and there are six others appointed by the President of the United States, subject to the approval of the Senate. Not more than one of the six may come from any one Federal Reserve district, and it is stipulated that appointments shall be made with "due regard to a fair representation of the financial, agricultural, industrial, and commercial interests, and geographical divisions of the country."

When a bank takes out membership in a Federal Reserve bank, it does not thereby lose its independence of action. It continues to function as before, conducting its operations in accord with national or state laws. The twelve Reserve banks, likewise, are autonomous units in dealing with their member banks. The amounts that they lend to member banks, and the rates at which the loans are made, are ordinarily determined by each Reserve bank for itself through its board of directors, six of whom are

elected by member banks and the remaining three appointed by the Federal Reserve Board. But the Federal Reserve Board acts as a coordinating body in matters that affect more than one Reserve bank.

"The Board prescribes regulations governing methods and procedure of Federal Reserve operations in all those matters where uniformity is necessary. Discount rates are fixed by the several Reserve Banks subject to 'review and determination of the Federal Reserve Board.' The Board has certain limited operating functions in serving as a central clearing house for check collections and wire transfers. It has a force of examiners who examine the Reserve Banks periodically, and it maintains a complete statistical record and analysis of Federal Reserve operations, much of which is made public through the Board's weekly press statements, monthly bulletin, and the annual report to Congress. In addition to these and a number of other specific functions, the Board exercises general supervision over the operations of the Reserve Banks."⁷

Federal Reserve Notes.—We come now to one of the most important functions performed by the Federal Reserve System, namely, that of providing elasticity of credit through the issuance of Federal Reserve notes. Long before the inception of the Federal Reserve System, it was recognized that the inflexibility of bank note issue was a serious handicap in time of emergency. In times of industrial boom, when prices are mounting and business is expanding, manufacturers and merchants frequently appeal to their banks for credit and still more credit, with which to make additions to plant or stocks.

Even more vital is the ability to secure funds when the boom has reached its peak, when there is anxiety and uncertainty in the air, and credit has been strained to the limit. If the banks cannot lend aid in the face of such a crisis, bankruptcy may easily be the fate of business men whose credits are considerably greater than their debits, but whose assets unhappily are not sufficiently liquid to enable them to meet the pressing obligations of the moment.

Why could not the banks, in a situation such as this, have

⁷ W. R. Burgess, *The Reserve Banks and the Money Market*, p. 11.

extended further credit to their customers? Because, first of all, bank deposits would already have been stretched just as far as possible, in view of the necessity of maintaining legal reserves against deposit accounts; and because, in the second place, the conditions of *national* bank note issue prior to 1914, as now, were such that *this* form of credit could not readily be expanded. For the banking laws demanded, and still demand, that national bank notes be secured, dollar for dollar, by a deposit of government bonds, plus a redemption fund of five per cent in lawful money. Therefore, a shortage of government bonds might have proved to be a very real stumbling block at a time when more bank notes were needed. For the government bonds that could be used as backing for note issues were limited in number, and most of them, as a rule, were already serving as security for issues of bank notes.

The Federal Reserve solution of this problem is to substitute commercial paper for government bonds as security against notes issued to meet the demands of business expansion. We have seen that a business man may readily have a piece of commercial paper, such as a trade acceptance, discounted by his banker—that is, he may obtain for it either money or a deposit credit; and ordinarily the latter is chosen. But the Federal Reserve Act goes a step further, and provides that the business man's bank (if it belongs to the Reserve System) may take paper of this kind to the Federal Reserve bank of the district, and there have it *rediscounted*.

In this process, the member bank deposits the trade acceptance, or other credit instrument, with the Reserve bank, and receives in return Federal Reserve notes, a charge being made for the accommodation. The member bank is now in position to lend out the notes just received to business men who are seeking further credit. Thus, commercial paper of approved types is able to do double service, as the basis, first, of a loan from the member bank, and, later, of another from the Federal Reserve bank. The business man, it should be mentioned, deals only with the member bank, and not with the Reserve bank.

The only commercial paper that is eligible for rediscount is short-time instruments which result from actual business trans-

actions. The need for credit expansion, too, arises out of business transactions. And so it happens that just at the time when business is brisk, with requests for more and more credit coming in to banks, there is available, also, a large quantity of commercial paper that can be exchanged, so to speak, for Federal Reserve notes. Thus we get an expansion of credit when it is most needed. And since the Reserve banks charge interest for the use of their notes, if the demand for loans slackens there is every incentive for member banks to redeem their commercial paper pledges as promptly as possible, in order to effect a saving in interest. In this way the volume of credit contracts, once the need for it has passed.

When Federal Reserve notes are issued, the Reserve bank must deliver as security to the Federal Reserve Agent (who is the official representative, in the Federal Reserve bank, of the Federal Reserve Board) gold to the amount of 40 per cent of the issue, plus at least 60 per cent in the form of acceptable commercial paper. In addition to this collateral fund of 100 per cent, Federal Reserve notes are backed by the assets of the issuing bank, and their payment is guaranteed by the United States government. Consequently, elasticity of bank notes is attained without any reduction in safety.

Centralization of Reserves.—We have seen that a member bank is required by law to maintain a reserve against demand deposits to the amount of 13, 10, or 7 per cent, according to the size of the city in which the bank is located; and a reserve of 3 per cent against time deposits. Prior to the introduction of the Federal Reserve System, the legal reserves for demand deposits were 25, 25, and 15 per cent, and for time deposits 5 per cent. The reduction in this percentage is made possible, without any loss of security, through the centralization of the reserves. The reserves of all member banks of a district are now deposited with and held by the Federal Reserve bank of that district.

This policy of pooling reserves enables the Reserve bank to give aid to any member bank upon which depositors are drawing heavily. Formerly, the individual bank was expected to fight its own battles and to have on hand at all times a reserve large enough for any emergency. With the reserves of all member

banks under the control of a central agency, the Federal Reserve bank of the district, further funds can readily be extended to the particular bank that needs them. Each district is so large that it is improbable that all banks throughout the area will require aid at the same time. Indeed, "the season for expansion in one part of the district frequently coincides with the season for contraction in another."

Certainly, the diversified nature of economic life in the country as a whole makes it improbable that business men everywhere will be clamoring at one time for more credit. When business is booming in an industrial region, things may be very quiet in an agricultural district, and *vice versa*. And the Federal Reserve Board is empowered to shift reserves from one district to another, if by so doing it can relieve a situation that would otherwise be serious. The principle involved in the centralization of reserves is similar to the principle of insurance. There is safety in numbers, for as numbers are increased the risk is spread. Since it is impossible to tell in advance which bank is going to be hard pressed, it was necessary, under the old system, for each bank to be prepared for the emergency. With the Reserve banks and the Reserve Board standing ready to give assistance whenever and wherever it may be needed, there is no necessity for so large a total reserve as heretofore.

Deposit Accounts with Reserve Banks.—The reserves deposited by member banks with Federal Reserve banks are not allowed to lie idle, but are made to perform useful service. In depositing their reserves, the member banks acquire claims against the Reserve banks. These claims take the form of deposit accounts. Member banks then borrow from Reserve banks in much the same manner as business men borrow from commercial banks. "The member bank which borrows at a Reserve bank receives a deposit credit at the Reserve bank which counts as part of the reserves of the member bank. If the bank needs currency it usually draws Federal Reserve notes."⁸ But though the member bank may secure Federal Reserve notes from the Reserve bank, just as a business man with a deposit credit may obtain bank notes from a member bank, the member bank must

⁸ *Ibid.*, p. 29.

at all times retain with the Reserve bank a deposit sufficiently large to constitute the required legal reserve against its extension of deposit credit to its own customers.

When, through the withdrawal of considerable quantities of Federal Reserve notes, a member bank has reduced its balance at the Reserve bank below the reserve required as security for its demand deposits and time deposits, the depleted balance is replenished by borrowing from the Reserve bank at the established discount rate. When currency is again abundant, and the member bank has more funds available than are necessary to meet the needs of its customers, it proceeds to pay off its indebtedness to the Reserve bank, thus putting a stop to the interest charge. The tendency is for member banks to keep in their immediate possession only such money as will be needed to satisfy the requirements of those with whom they do business. Any surplus that they may have is sent to the Reserve bank, where it can be used as a reserve or drawn against by check.

An Illustration of Elasticity of Credit.—Since a reserve of only 40 per cent in gold is required as security against Federal Reserve notes, and but 35 per cent in gold or lawful money against deposit accounts, a gold dollar in a Federal Reserve bank may be used as the basis of a \$2.50 issue of Federal Reserve notes or a \$2.85 credit on deposit. Consequently, \$1.00 in gold in the possession of a Reserve bank will enable the Reserve bank, upon the presentation of the proper commercial paper, to extend to member banks \$2.85 in credit; and member banks as a whole, in turn, will be able to extend a much greater amount of deposit currency to their customers. For the \$2.85 on deposit with the Reserve bank serves as a reserve, and is sufficient security to enable the member bank to give credit to the amount of approximately \$22.00, \$28.50, or \$41.00, depending upon whether the bank is located in a large city, medium-sized city, or small town. For \$2.85 is 13 per cent, 10 per cent, and 7 per cent, respectively, of the three amounts that we have mentioned.

Of course, the expansion of credit that actually takes place is not so great as we have imagined in our illustration. Indeed, it has been shown that the necessity for keeping on hand sufficient

cash to meet the demands that may be made by depositors, makes it impossible to extend anything like so large an amount of credit as we have suggested above would be legally permissible.⁹ Generalizations in such matters are risky, and because of their inexactness are often worthless; but our example of the maximum expansibility shows that gold, under the Federal Reserve System, is much more useful as a reserve than as a direct medium of exchange. However, it is a principle of Federal Reserve policy "that reserve funds should be used (either paid out or as a basis for credit) whenever they are genuinely needed, but should not be used beyond that need. The determination of what are genuine needs is a major problem."¹⁰

Control of Credit Expansion.—We have noted that the Federal Reserve System was designed to contribute to the public welfare, and not to private profit. This means that the quantity of credit in circulation must bear a definite relationship to business conditions. If, therefore, in a period of industrial boom, credit has been expanded so greatly as to bring reserves close to the minimum for safety, further increases should be avoided, if possible. But if business is inactive, and reserves are more than ample (as they are likely to be in time of business depression), the use of credit should be stimulated.

The principal method of attaining these ends is the manipulation of the interest charge, or "rediscount rate," as it is often called. If the interest rate is raised, and member banks are required to pay more for their loans, they may be persuaded to reduce rather than increase their borrowings. If, on the other hand, the rediscount rate is lowered, it may have the effect of encouraging borrowing, and thus put new life into business at a time when a stimulant is badly needed. The rediscount rate for each district has been under the control of the Reserve bank of the district, subject to the supervision of the Federal Reserve Board. In August, 1929, the Federal Reserve Bank of New York, presumably to discourage borrowing for strictly speculative purposes, raised the rediscount rate from five per cent to six per cent, an action

⁹ See, in this connection, C. A. Phillips, *Bank Credit*, Chapter 3. New York: The Macmillan Co., 1921.

¹⁰ W. R. Burgess, *The Reserve Banks and the Money Market*, p. 29.

which resulted in a temporary "slump" of the New York Stock Exchange.

In order to be thoroughly effective, it appears that changes in the rediscount rate must be accompanied by "open market" operations on the part of the Reserve banks. Without attempting to explain these operations in detail, we may say that they consist of the sale or purchase of securities by Reserve banks, with the thought of making it easier or more difficult (as the case may be) for member banks to extend credit. Through these "open market" operations, as through changes in the rediscount rate, the extension of credit by member banks may be encouraged or discouraged, as seems best to the Federal Reserve officials, who, it will be recalled, are avowedly working in the interests of the public.

Experience with the Federal Reserve System.—It is perhaps too early to determine the degree to which the Federal Reserve System has managed to live up to the hopes of its originators. But the experience of fifteen years, some of which were peculiarly trying years, seems to indicate that the System, up to the present time, has worked quite as well as could be expected. There can be no doubt that it has provided both elasticity and security. It deserves great credit for having apparently eliminated financial panics, which, prior to 1914, were not uncommon. Some criticism of the System has developed, but it comes chiefly from representatives of the agricultural interests, who contend that the farmers have not always been given credit at fair rates, and from those who regard the Federal Reserve Board as the "tool of Wall Street." But that the Federal Reserve System has brought substantial gains, even these critics do not deny.

INVESTMENT BANKING

It is the business of commercial banks to provide manufacturers, merchants, and other business men with working capital, largely on the security afforded by short-time credit instruments. The chief function of the Federal Reserve System is to facilitate the work of the commercial banks, and in particular to aid in supplying abundant credit when credit is badly needed. The

temporary nature of the loans made through these agencies is indicated in a provision of the Federal Reserve Board relating to the type of commercial paper that is acceptable for rediscount at Reserve banks. "It must not be a note, draft, or bill of exchange the proceeds of which have been used or are to be used for permanent or fixed investments of any kind, such as land, buildings, or machinery, or for any other capital purpose." In other words, it is intended that the proceeds of commercial loans shall be expended for circulating capital and not for fixed capital.

Investment Bankers.—Funds for the purpose of fixed capital may be, and sometimes are, procured from private individuals. But it is much more common to handle this type of loan through a banking house that makes a specialty of dispensing credit for permanent investments. Because of the need for agencies of this kind in a rapidly growing industrial society, there have developed in the United States a number of investment banking concerns, whose job it is to gather together the savings of many individuals, and place them at the disposal of the few who can use them to advantage in the conduct of business ventures.

The process of collecting savings is carried on indirectly, in most cases. That is to say, investment bankers do not as a rule come into direct contact with those whose funds they invest, unless the latter happen to be persons of great wealth whose accumulations are sufficiently extensive to warrant individual attention. For the most part, the established investment banking houses secure their funds by offering for sale the stocks and bonds of concerns that can use to advantage additional quantities of fixed capital.

The Process of "Underwriting."—When, therefore, an industrial corporation or railroad wishes to increase its plant or equipment, it is likely to open negotiations with a great investment banking house, such as J. P. Morgan & Company, or Kuhn, Loeb & Company, and request that this concern undertake to float an issue of stock or bonds, or perhaps both. If the banking house has no intimate knowledge of the business affairs of the company in question, it will undoubtedly make a careful investigation of all pertinent facts before agreeing to finance the operation. For it must be remembered that an investment house is known by the

securities it sells, and its reputation is safe only so long as its customers are pleased with their purchases. Hence, the need to ascertain that the business to be financed is entirely sound.

If, with all necessary information at hand, the investment banking house decides to undertake the commission, it buys from the company stock or bonds, or both, running sometimes into many millions, and thus provides the fixed capital that is desired. Now comes the task of disposing of its purchase. To this end, the investment house proceeds to form an "underwriting syndicate," made up of a number of other investment banking concerns that are given an opportunity to join in the sale of the securities in question.

Each of the several underwriting concerns guarantees that certain amounts of the securities will actually be sold. The original banking house now offers these securities for sale to the public, at, of course, a higher price than was paid for them. If the entire issue is sold without difficulty, each of the participating concerns is rewarded on the basis of the quantity that it individually underwrote, or guaranteed. If, on the other hand, some of the securities remain unsold after a specified time, they are divided among the underwriting houses in proportion to their guaranties, and are sold by each to investors on terms as advantageous as can be secured.

Underwriting, it will be seen, involves the principle of insurance, and is one of the many devices used in the business world for "spreading the risk." An investment house would usually much prefer a one-twelfth interest in each of a dozen good securities, to complete responsibility in a single stock or bond that has been issued in huge quantities.

Agencies for the Collection of Savings.—By whom are securities of this kind purchased? Ultimately, of course, by the general public, or by that portion of the public that earns more than it spends for consumptive purposes. But in most cases the savers of income do not invest it directly, but through some type or other of intermediate agency. Commercial banks, savings banks, insurance companies, and endowed institutions of many kinds have funds to invest from time to time. Since these funds are not likely to be called for soon, or to any appreciable extent,

they are largely available for long-time investment, provided the investment be safe.

Because many of these savings belong to persons of extremely limited financial resources, there is especial need for security; and certain institutions, such as insurance companies and savings banks, are restricted in the uses to which their available funds may be put. Though the individual investment in insurance or savings account is frequently small, the total accumulation of this kind is great. For example, savings accounts in this country had reached, on June 29, 1929, the imposing total of \$27,198,320,000, which represented the savings of more than 50,000,000 depositors.

It may be said, in conclusion, that approximately 15 per cent of the national income of the United States is saved every year. This means something like \$15,000,000,000 added to the total resources of the country annually. A large part of this amount is used for permanent investment in fixed capital, and is handled through the investment banking process that we have sketched.

CHAPTER XIII

THE PURCHASING POWER OF MONEY

THE study of prices, as pursued by economists, follows two main lines of inquiry. The first of these has to do with general (or average) prices. The general prices of one time are compared with the general prices of another time, and an effort is made to measure and explain any changes that may have taken place. The general prices of a given time (say, of the year 1929, or a single month of that year) are frequently referred to as a "price level."

The second line of inquiry relating to prices seeks to explain the factors which determine the prices of individual commodities as they relate to each other. What is it, for example, that determines the price of a pound of butter or a ton of coal, both at a specified time and "in the long run"? Questions of this kind will be treated later, under the heading "Individual Prices." In the present chapter we shall deal with general prices, or price levels.

THE DETECTION AND MEASUREMENT OF PRICE CHANGES

General prices at different times, say in two or more different years, may be compared through the use of a device known as the "index number."

The Making of Index Numbers.—Index numbers are constructed by choosing a *base year*, in which general prices are given a rating of 100, and then giving to prices of other years ratings either higher or lower than 100, depending upon whether the prices of those years are higher or lower than the prices of the base year.

The principle of index numbers will be better understood if we consider a simple table and describe, with actual prices, the manner in which the index numbers are arrived at. Table V is

TABLE V: CONSTRUCTION OF UNWEIGHTED INDEX NUMBERS

Using the aggregate of the 1926 wholesale prices of five commodities as a base, the "relatives" (or percentages) for 1920 and 1915 are computed by dividing the aggregates of the latter years by the aggregate of the base year. The results are the unweighted index numbers for these years. The method is called the "relative of aggregates."

Commodities	Prices per Unit		
	1926	1920	1915
Butter (per pound).....	.40	.67	.30
Eggs (per dozen).....	.30	.48	.22
Coffee (per pound).....	.58	.15	.08
Lead (per pound).....	.08	.09	.04
Cotton (per pound).....	.19	.40	.10
Aggregate Prices.....	\$1.55	\$1.79	\$.74
Unweighted Indexes.....	100	115	48

made up of the prices of five commodities for the years 1926, 1920, and 1915. The prices here given are from wholesale quotations of those years. Wholesale prices are used because reliable wholesale quotations can be secured more readily than accurate retail prices; and, moreover, they vary less, throughout the country, than retail prices.

The year 1926 has been chosen as the base year. The individual prices of that year are added, and to this aggregate is given a rating of 100 per cent. The percentages for the other two years are arrived at by comparing the aggregate prices of those years with the aggregate for 1926. Dividing the aggregate for 1920 (\$1.79) by the aggregate for 1926 (\$1.55), we get the index number of 115 for 1920. In like manner, we arrive at an index of 48 for 1915. The index number for 1926, the base year, is, of course, 100.

Weighted and Unweighted Index Numbers.—These three index numbers are "unweighted"; that is, the five commodities that we used have had an equal share in affecting the total index number, without regard to their relative importance in the total volume of the country's trade. But some items enter much

more extensively into trade than do others, and the large sales of such goods entitle them to special consideration in the construction of indexes. Consequently, it is now the custom to "weight" index numbers, multiplying the price of each commodity by a number indicating its relative importance in total trade, so that the part played by each item in influencing the final index number is determined by the quantity of that commodity that is bought and sold.

If we assume that the sales of butter, eggs, coffee, lead, and cotton amount to 20,000, 30,000, 10,000, 5,000, and 20,000 units, respectively, we may compute *weighted* index numbers which reflect more accurately than *unweighted* indexes the changes that have taken place in general purchasing power. These revised index numbers, as is shown in Table VI, are 100 for 1926, 140 for 1920, and 58 for 1915.

TABLE VI: CONSTRUCTION OF WEIGHTED INDEX NUMBERS

The individual prices are multiplied by the quantities sold. An aggregate of these total prices is found for each year, and the index numbers are arrived at by dividing each of these aggregates by the aggregate for the base year. The results are weighted index numbers.

Commodities	Units Sold Annually	1926		1920		1915	
		Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
Butter (per pound).....	20,000	.40	\$ 8,000	.67	\$13,400	.30	\$ 6,000
Eggs (per dozen).....	30,000	.30	9,000	.48	14,400	.22	6,600
Coffee (per pound).....	10,000	.58	5,800	.15	1,500	.08	800
Lead (per pound).....	5,000	.08	400	.09	450	.04	200
Cotton (per pound).....	20,000	.19	3,800	.40	8,000	.10	2,000
Aggregate Prices.....			\$27,000		\$37,750		\$15,600
Weighted Indexes.....			100		140		58

There are at least a half-dozen index numbers in this country that have been constructed with care, and are being kept up to date. Professor Irving Fisher, of Yale University, publishes a

weekly commodity index based on 120 items. Carl Snyder, of the Federal Reserve Bank of New York, has constructed a *general* index, in which are included not only wholesale and retail commodities, but such items as stocks, bonds, real estate, freight rates, rents, and wages. One of the best index numbers of *wholesale commodity prices* is that published by the United States Bureau of Labor Statistics, to which new data are added every month. This is the index which we shall use in our present discussion.

Price Index of the Bureau of Labor Statistics.—For many years the Bureau of Labor Statistics has compiled, month by month, an index of commodity prices. This index is now made up of the wholesale prices of 550 commodities; and these commodities include farm products, foods, hides and leather products, textiles, fuel and lighting, metal and metal products, building materials, chemicals and drugs, house furnishings, and miscellaneous goods. The base year of the index has been changed from time to time, as the Bureau has deemed desirable. At present, 1926 is the year on which the index is based.

The index of the Bureau of Labor Statistics goes back as far as 1890, but the figures for years prior to 1913 are based on fewer commodities than are the figures since 1913; however, to quote an official statement of the Bureau, "they may be considered comparable for all practical purposes." This index, like that illustrated in Table VI, represents a "relative of aggregates"; moreover, all of the items that have been used, unlike those of Table V, have been carefully weighted by multiplying individual prices by the quantities sold in each year.

Commodity Prices and Purchasing Power.—In Table VII are given the index numbers of general wholesale prices for the years 1900 to 1929, and also, in the second column, index numbers indicating the purchasing power of the dollar during those years. A comparison of these two columns shows that when the commodity index is high the index of purchasing power is low, and *vice versa*. This is necessarily the case, since the index of purchasing power is obtained by dividing the commodity index of the various years into that of the base year, 1926. We see, then, that a United States dollar bought, in 1911, 154 per cent as

TABLE VII: INDEXES OF WHOLESALE COMMODITY PRICES AND PURCHASING POWER OF THE DOLLAR, 1900 TO 1929

(Source: United States Bureau of Labor Statistics. Base year, 1926.)

Year	Wholesale Commodity Index	Index of Purchasing Power
1900.....	56.1	178.2
1901.....	55.3	180.8
1902.....	58.9	169.1
1903.....	59.6	167.8
1904.....	59.7	167.8
1905.....	60.1	166.4
1906.....	61.8	161.8
1907.....	65.2	153.4
1908.....	65.9	159.0
1909.....	67.6	147.9
1910.....	70.4	142.0
1911.....	64.9	154.0
1912.....	69.1	144.7
1913.....	69.8	143.4
1914.....	68.1	146.9
1915.....	69.5	144.1
1916.....	85.5	117.6
1917.....	117.5	85.5
1918.....	131.3	76.4
1919.....	138.6	72.3
1920.....	154.4	65.4
1921.....	97.6	102.9
1922.....	96.7	103.5
1923.....	100.6	99.4
1924.....	98.1	102.2
1925.....	103.5	96.7
1926.....	100.0	100.0
1927.....	95.4	104.9
1928.....	97.7	102.4
1929.....	96.5	103.6

much as in 1926; but in 1920 it purchased only 65.4 per cent as much as in 1926. Judged by the 1926 standard, therefore, the purchasing power of the dollar was great in 1911, but small in 1920; and, judged by the same standard, the price level was low (64.9) in 1911, and high (154.4) in 1920.

Index Curves.—The commodity index and index of purchasing power for each of these thirty years are plotted in Figure 17, so that the price changes from year to year may be noted more readily.

The heavy horizontal line opposite the index number 100 shows the kind of price "curve" that we would have had, had there been no changes in general commodity prices during the period in question. The curve indicating the level of wholesale commodity prices which actually prevailed in these different years shows that from 1900 to 1915 general prices were fairly stable; that there was a sharp advance in prices from 1915 to 1920, then a sudden fall to 1921; and that since 1921 we have had relatively stable prices, but

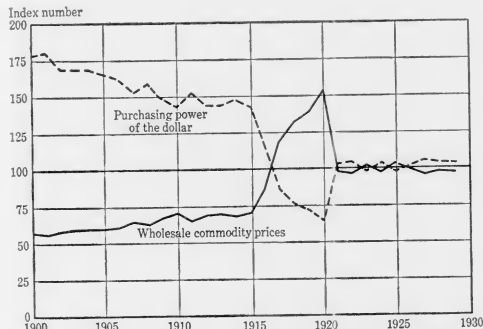


Fig. 17: INDEX CURVES OF WHOLESALE COMMODITY PRICES AND PURCHASING POWER OF THE DOLLAR, 1900 TO 1929 (See Table VI)

on a much higher level than between 1900 and 1915. The peak of prices was reached in 1920, when the general level of prices was more than twice as high as before the war, and consequently the purchasing power of the dollar was less than half as great as in 1913.

Changes in the Value of Money.—We have noted that the index of purchasing power of the dollar varies inversely with the commodity index. Whenever the latter is higher than 100, the former is lower than 100. This fact is shown graphically in Figure 17. Since a dollar is always 25.8 grains of gold nine-tenths fine, every advance in commodity prices indicates a decline

in the value of gold, and *vice versa*. In 1920, for example, when the index of prices was 154.4, the index of purchasing power (representing the value of 25.8 grains of gold) was only 65.4. This means that the value of gold was only two-thirds as great (that is, had only two-thirds as much purchasing power) in 1920 as in 1926. The index of purchasing power, then, is also an index of the value of gold, or money.

POSSIBLE CAUSES OF CHANGES IN PRICE LEVELS

Our reference to gold in the preceding paragraph suggests that gold (or money issued on the basis of gold) may have something to do with changes in price levels. This relationship between gold (or money) and prices is set forth in the Quantity Theory of Money. The theory states that prices vary directly with the quantity of money in circulation. This means that if the quantity of money is increased, other things remaining unchanged, prices will rise; and if the quantity of money is decreased, other things remaining unchanged, prices will decline.

The Equation of Exchange.—The "other things" to which we have referred are (1) the velocity of circulation of money, and (2) the volume of trade. The velocity of circulation refers to the "rate of turnover" of money, or the number of times that it is used in a given period. We saw, in an earlier chapter, that money may have a turnover of twenty-five or thirty times a year; that is, the same dollar may be used in twenty-five or thirty purchases in a twelve-month period. The volume of trade relates to the total number of exchanges that take place in a given time; and, of course, an exchange is made every time a thing is bought or sold.

With these facts in mind, we may set down a formula, which is known as the "equation of exchange." The formula is this:

$$P = \frac{MV}{T}$$
 In this algebraic formula, "P" relates to price, "M" to the quantity of money, "V" to the velocity of circulation (or turnover) of money, and "T" to the volume of trade, or total number of exchanges. We have already noted that money is

desired ordinarily not for its own sake, but almost exclusively because of its usefulness in securing other goods. This being the case, it is probable that all of the goods that are offered for sale will exchange for all of the money that is available; since purchasers, in their desire to secure goods, will bid higher and higher prices for the commodities they wish, until the limited quantity of money prevents further bids.

Our equation of exchange is merely a convenient way of expressing this fact, and what it says in effect is that, for a given period of time, prices in general are determined by the relationship between MV and T . It will be apparent, therefore, that any change in M or V , without a corresponding change in T , will cause a change in P . If, for example, the quantity of money (M) should increase, the other factors remaining constant, the price level will rise. An increase in the velocity of circulation (V), without change in the other factors, will have a similar effect. And if the volume of trade (T) should increase, without a corresponding change in either the quantity of money or the velocity of circulation (or both), the price level will suffer a decline. It is evident, then, that there is a relationship between these three factors, and that a change in any one, without some offsetting change in either one or both of the others, is bound to affect the price level.

Examples of the Equation of Exchange.—The possible effects, upon the price level, of changes in the quantity of money, the velocity of circulation, or the volume of trade, may be illustrated by several examples. Let us assume, in order to make our conditions very simple, that the total amount of money in circulation is \$500, the velocity of circulation is 30, and the total volume of trade is 150,000 loaves of bread. Under these conditions, the price of bread may be ascertained by recourse to our formula. Substituting the known quantities for M , V , and T , we have the following equation: $P = \frac{\$500 \times 30}{150,000}$. The price of bread, therefore, is 10 cents a loaf. If, now, the quantity of money were doubled without any change taking place in V or T , a simple calculation will show that the price of bread would be 20 cents a loaf;

and if the quantity of money were to fall to \$250, with no change in the other factors, the price would necessarily drop to 5 cents a loaf.

If M and T remain constant at \$500 and 150,000, respectively, but V (the velocity of circulation of money) changes from 30 to 15, we should again have bread selling at 5 cents a loaf. If M and V should remain constant, and T should increase to (say) 300,000 loaves, then once more the price per loaf would be 5 cents.

These simple calculations demonstrate that a change in price (P) may be the result of a change in M , V , or T , or a combination of changes in these three factors. Since we assumed that the *total volume of trade* consists of loaves of bread, the prices that we have been talking about are in reality *general prices*, or *price levels*. If we take as a base the period in which bread sold at 10 cents a loaf, the commodity index of that period will be 100; the index of the second period (with bread at 20 cents) will be 200, and the indexes of the remaining three periods will be 50.

"Credit" in the Equation of Exchange.—It is now necessary to make a modification in our equation of exchange as it has been described, since prices are affected not only by the quantity of money which is available for the purchase of goods, but by the quantity of credit as well. Indeed, credit plays a much greater part in influencing the price level than does money, since the quantity of deposit currency available for the purchase of commodities of various kinds is approximately five times as great as the quantity of money actually in circulation. The general nature of the equation, however, remains unchanged. All that is necessary is to insert two new factors, M' for credit, and V' for the velocity of turnover of credit. The formula, as revised, is as follows: $P = \frac{MV + M'V'}{T}$. If all the factors of this equation except

P are known, this unknown factor (representing the price level) may be ascertained just as readily as in the simpler form of the equation.

The Quantity Theory of Money.—It is obvious, therefore, that the changes in price levels are brought about through

changes in one or more of these several factors. Unfortunately, it is not possible to say, with great exactness, to what extent these factors do change from time to time. It is the contention of a group known as the "quantity theorists" that the important changes in price levels are the result of changes in M and M' , which are usually grouped together under the title, "circulating media." It will be recalled that there is a relationship, though not a very exact one, between money and credit, since credit, which exists chiefly in the form of deposit currency, is based upon money in the form of bank reserves; so that, within certain rather wide limits, the quantity of credit is fixed by the quantity of money.

The quantity theorists believe that the velocity of circulation changes but slightly; that is to say, that a dollar is called upon to effect just about as many changes in one year as in another. Though they admit that the total volume of trade changes somewhat from time to time, they argue that fluctuations in T would not account for the great changes in price levels that have sometimes taken place. As for M and M' (money and credit), there can be no doubt that these items have fluctuated very greatly at times. The fact that their increases and decreases coincide rather closely with increases and decreases, respectively, in price levels, seems to indicate that the quantity theorists have some justification for believing that money and credit are by all odds the most significant factors in bringing about these fluctuations in general prices.

Historical Verification of the Quantity Theory.—An examination of conditions that existed between 1913 and 1920, a period in which general prices in the United States more than doubled, tends to corroborate the theory that money and credit are the most important influences in effecting changes in price levels. Table VII shows that the wholesale commodity index rose from 60.8 in 1913 to 154.4 in 1920. If the total volume of trade had been smaller in 1920 than in 1913, part, at least, of this increase in general prices might be attributable to T . But, as a matter of fact, production and exchange actually increased in the period under discussion. Almost nothing can be said with assurance about V and V' during these seven years, but it seems probable

that they are not responsible, to any appreciable extent, for the tremendous increase in general prices.

When we examine M and M' , however, we discover increases in the quantities of these factors which suggest very strongly that the high price level of 1920 may properly be charged up to them. The concrete facts about money and credit in the period under discussion are these: In 1913 the total amount of money in the United States was less than \$4,000,000,000, but by 1920 it was more than \$8,000,000,000. The amount of *increase*, to be exact, was 116 per cent. This increase was due largely to shipments of gold from Europe to the United States. Credit, in form of bank deposits, experienced an increase of 152 per cent from 1913 to 1920, jumping from less than \$9,000,000,000 to approximately \$22,000,000,000. Another increase in M' resulted from a great extension of credit due to the rediscounting of commercial paper at Federal Reserve banks. Finally, some \$16,000,000,000 worth of war bonds had been issued up to 1920, and these in many cases circulated just as freely as money, thus increasing greatly the total quantity of circulating media.

With these facts before us, it is not difficult to believe that M and M' were largely responsible for the extremely high price level of 1920, as compared with the level of 1913. Another evidence of the influence of M and M' upon price levels is to be found in the gradual increase in general prices from 1900 to 1913. During this period the index number rose from 56.1 to 69.8, using 1926 as the base year; and during this same period there was a steady increase in both money and credit, resulting from the increased production of gold which had its beginning in the latter years of the nineteenth century.

EFFECTS OF FLUCTUATIONS IN PRICE LEVELS

We may now examine briefly some of the results of changes in general prices. It should be remembered, first of all, that, barring transitional effects, it matters little whether prices are high or low. The equation of exchange shows that all goods entering into trade will exchange for all money and credit in circulation. If, therefore, the quantity of circulating media of one

period is double that of another period, with trade and velocity of circulation remaining unchanged, the price level will be just twice as high as it has been. Doubling the amount of circulating media, then, means doubling prices; and a dollar instead of fifty cents will be demanded in exchange for a dozen eggs, and two miles instead of one for a loaf of bread.

But if this price level should remain unchanged for a considerable length of time, wages and other forms of payment would also tend to be twice as high as they had been. We would then exchange twice as many "counters" (or dollars) for a given amount of goods as were required to make the purchase prior to the increase in general prices; but no hardship would ensue, since wages and salaries would also consist of twice as many counters (or dollars) as had been paid before the rise in prices took place. We see, then, that it is the transitional effects—the results of sudden and extensive price fluctuations—that cause the troubles that are experienced on account of changes in price levels. High prices and low prices are equally harmless, if only one or the other, once adopted, will "stay put." But changes in price levels may result in genuine hardship for some and unearned gains for others.

The Hazards of Long-Time Credits.—These gains and losses are likely to occur whenever there is an extension of credit over a period of years, during which time changes in the price level may occur. In the lending or borrowing of money, it is really purchasing power which is loaned or borrowed. If a business man had borrowed \$1,000 in 1913, and repaid the loan in 1920, the amount of purchasing power returned to the creditor would have been 45 per cent of the amount received in 1913, and the creditor would have been the loser by \$550. If, on the other hand, this loan had been made in 1920, and returned in 1928, the borrower would have returned to the creditor \$1,500 in purchasing power, instead of the original \$1,000 borrowed, because of the decline in general prices.

These simple illustrations show that debtors gain through paying their obligations when prices are high, and lose through paying when prices are low. Business men are borrowing all

the time, sometimes to meet current expenses and again for the purpose of making additions to equipment. Changes in price levels may have serious consequences to such individuals, if they happen to borrow when prices are high in order to make improvements; for, as we have seen above, they may have to repay the loans when prices are low, and this means that they must pay back more purchasing power than they received. Sudden and great fluctuations in price levels may make it impossible for them to meet their obligations, and force them into bankruptcy.

The Problem of Fixed Money Income.—Sharp rises in price levels also have serious effects upon persons living on incomes from fixed money obligations. We may take the example of a retired business man living, in 1913, on an annuity of \$6,000. With prices as they were at that time, he could live quite comfortably on this amount. But in 1920 those same 6,000 dollars would buy only as much economic goods as he could have secured in 1913 for \$2,700; and his standard of living, of necessity, would have dropped accordingly. This illustration may be extended to include all persons living on annuities, pensions, insurance benefits, or interest from bonds; all institutions (such as colleges) operating largely on endowments; and, to a somewhat lesser degree, salaried workers as contrasted with wage earners.

The Plight of the Salaried Worker.—The term "salaried worker" refers here to types of wage earners whose incomes are on an annual or monthly basis, and not upon a weekly basis. This classification includes, of course, teachers, preachers, government employees, office workers, and a host of others. The important fact about the incomes of these persons is that, while salaries may change somewhat to meet changes in price levels, they almost invariably change very slowly. There is, for example, the case of the college teacher, who in 1915 was receiving a salary of \$2,000. This was a very small income, to be sure, but with strict economy he was able to make ends meet. By 1920, his salary had increased to \$3,000; but because of the tremendous increase in prices he could buy with the larger salary only as much as \$1,350 would have bought him in 1915. This is a typical example of the diffi-

culties in which salaried workers find themselves in a period of rapidly increasing prices.

The Case of the Wage Earner.—Skilled artisans and common laborers are usually referred to as "wage earners," in order to distinguish them from salaried workers. The wage earner is often, though not always, paid on a weekly basis, and the income that he receives is the result of frequent bargainings. In many instances, wage earners belong to trade unions, and wage agreements are drawn up by officials of the unions every year or two, or as often as every six months. As a consequence of these frequent bargainings over wages (which take place with unorganized workers also), the earnings of the wage earners are more likely to keep pace with rising prices than are the earnings of salaried employees.

Nevertheless, it is a fact, as may be seen by an examination of statistics, that increases in wages always lag behind rises in prices. A wage agreement continues in effect, let us say, for six months; but during the six-month period prices may increase materially, and thus cause the wage earner to lose out to some extent, so far as purchasing power is concerned. The point is expressed in the well-known saying, "Prices take the elevator, while wages climb the stairs."

The Effects of Falling Prices.—Our attention has been centered chiefly upon the results of *rising* prices, because increases in prices have particularly serious effects upon persons of relatively small incomes. When prices fall, the effects are the reverse, of course. Purchasing power, which has shrunk during the upward course of prices, expands again when prices are on the downward trend. It might be supposed that a balance would be reached in this way, but, so far as a given individual is concerned, there is no assurance that he will regain through falling prices anything like so much as he has lost through a rise in the price level.

Business men, who have goods to sell, are usually gainers through advances in the price level, since their costs of production ordinarily do not increase as fast as the selling price of the finished product increases. As a consequence, business men sometimes welcome rising prices, since they feel that the gains made on the up-grade will be greater than the losses which are incurred

when prices again decline. This is a matter which we shall touch upon again in the next chapter.

PROPOSED SOLUTIONS OF THE PROBLEM OF PRICE CHANGES

Because of the disadvantages of changes in price levels, such as those which we have outlined, attempts have been made to discover a remedy for what many consider a serious economic disorder. In general, the proposals have been of two kinds. First, plans have been suggested for lessening the evil effects of price changes without eliminating the changes in price levels themselves; and, second, there have been proposals for stabilizing prices through the control of the circulating media (M and M').

The P. R. T. Market Basket.—One of the most interesting suggestions for avoiding the harmful effects of price changes is known as the P. R. T. Market Basket Plan. The Philadelphia Rapid Transit Company, through the adoption of this plan, aims to guarantee to its employees a stable standard of living. The plan is designed to keep wages and prices always on the same level. Since the price level cannot be controlled by the Philadelphia Rapid Transit Company, this company does what appears to be the next best thing; namely, it increases wages as the price level rises, and decreases wages when there is a fall in general prices.

The Market Basket Plan uses an index number based on 184 articles, which are in sufficiently "general use to influence accurately the changes in the purchasing power of the employee's dollar." Among these items are "rent, shirts, stockings, nut coal, kerosene, brooms, sewing machines, pork chops, gas, tobacco, quinine pills and haircuts." From time to time the articles used in making the index number are priced in the stores and markets patronized by P. R. T. employees. If, at the close of the year, prices are found to have varied as much as 5 per cent, the basic wage is changed to meet this variation. It is contemplated, therefore, that changes in wages will ordinarily be made only once a year; but a variation of 10 per cent or more for a period of three months will also be met by a corresponding change in wages.

The purpose of the plan, as stated by the company, is "to

assure to the employee and his family their present standard of living, in bad times as well as in good." This does not mean that P. R. T. employees have no opportunity to improve their present standard of living. Wages can still be increased, as heretofore, by convincing the management that higher wages should be paid. The P. R. T. Market Basket simply assures the employee that his standard of living will not be affected by such a force as fluctuating prices, which are wholly beyond his control.

Since the introduction of this plan, prices have fluctuated so slightly that it has not been necessary to make any changes in wages. Whether the plan will work satisfactorily if there should be an appreciable rise or fall in prices remains to be seen. If prices, and consequently wages, should take a pronounced drop (let us say to the extent of 20 per cent), it would probably be difficult to convince the employees that they are not being imposed upon. The average worker will find it hard to understand that \$32 a week with a low price level means as much purchasing power as \$40 a week when the price level is higher. And if prices should rise greatly (say to double their present level), though the employee would surely not object to receiving \$80 a week in place of the usual \$40, it would probably be difficult for the company to secure sufficient revenue to enable it to advance wages to this extent.

Multiple Standard of Deferred Payments.—A second plan for avoiding evil effects of price changes, which we shall not be able to examine in detail, relates to long-time credits. It is called the Multiple or Tabular Standard of Deferred Payments, and is similar in general principle to the P. R. T. Plan. The idea is that debtors, in meeting their obligations, should pay to creditors not the number of dollars that they have borrowed, but the quantity of purchasing power that they have borrowed. If, under this plan, \$1,000 were borrowed in 1913 and repaid in 1920, the payment would not consist of a mere \$1,000 (which would represent in 1920 only \$450 of purchasing power on the 1913 basis) but \$1,200 (which in 1920 would buy as much as \$1,000, the amount borrowed, would have bought in 1913).

Without going further into plans of this kind, it may be said that there would be numerous difficulties in the actual working

out of such plans as we have reviewed. It would appear that arrangements such as these are scarcely feasible, so long as they are adopted by only a few persons or organizations.

The "Stabilized Dollar."—Another attempt to solve the problem of changing prices is to stabilize prices through the control of the circulating media. One of the best-known plans of this type is that which is usually referred to as the "stabilized dollar" or "compensated gold dollar," and has been associated with the name of Professor Irving Fisher.

We can give here only the barest outline of the plan. We have seen that a rise in prices means a fall in the value of gold, and *vice versa*. Now Professor Fisher wants a dollar which will always buy the same amount of goods, and he proposes to get it by increasing or decreasing the amount of gold in the dollar, as prices show a tendency to rise or fall.

The plan includes:

1. A monthly index number.
2. The removal of all gold from circulation, and the use of circulating media consisting only of gold certificates.
3. A variation in the amount of gold that a "gold certificate" will command at the mint, this variation corresponding to general price changes.

We may see how the plan would presumably work, by assuming that all money in circulation is represented by one dollar, and that the index number is 100. Now let us suppose that the index number rises to 110. This means, of course, that sellers of goods are no longer willing to exchange their products for the amount of gold contained in a dollar, but demand the amount of gold contained in \$1.10. Since gold is thus actually less valuable than it has been, a gold certificate called a "dollar" should command more actual gold than it formerly did. Professor Fisher would make this literally true; the gold certificate presented at the mint when the index number is 110 would command 10 per cent more gold than it would when the index number is 100.

And now, since a gold certificate does represent the amount of gold demanded by sellers for their goods, namely, 110 per cent of the former amount, the gold certificate will readily exchange

for the same amount of goods as before the rise in the index number took place; for sellers are now getting, in each gold certificate, the amount of gold that they are demanding. In this way prices would forever remain unchanged, as expressed in gold certificates; or, more correctly, prices would always tend to fluctuate about the index number of 100.

Control of Credit by Federal Reserve Board.—The most serious objection that has been raised to Professor Fisher's "stabilized dollar" is based upon the fact that most business today is transacted with credit, and not with gold. While there is a relationship between the volume of credit and the quantity of gold, due to the existence of gold bank reserves on the strength of which credit is so largely issued, this relationship, according to some economists, is not sufficiently close to bring about the results which Professor Fisher predicts.

Consequently, it is now proposed by many students of the problem that prices be stabilized through the control of credit by the Federal Reserve Board. Since at least 90 per cent of the business of the country is conducted on the basis of credit, this seems to be a logical spot for attack. Much of this credit is extended through the rediscounting process provided by the Federal Reserve System, which permits member banks to expand their credit by giving commercial paper as security.

Now the Federal Reserve Board can encourage or discourage the rediscounting of commercial paper by lowering or raising the rediscount rate and in this way can control, to some extent at least, the amount of credit (or *M'*) in circulation. If the price level shows a disposition to rise above normal, an increase in the rediscount rate will tend to contract credit and bring the level down; in a similar manner, a lowering of the rediscount rate will have the effect of encouraging an extension of credit and thus bring about a rise in price level. This is not the whole of the story. The Federal Reserve banks, acting upon advice of the Federal Reserve Board, may also through their "open market" operations (consisting of the sale or purchase of securities by Reserve banks) encourage or discourage the extension of credit by member banks. And it is also possible for the Reserve banks

to influence the situation by giving advice to or exerting moral influence upon member banks.

This control of credit through the Federal Reserve Board is the most thoroughgoing, and in some respects appears to be the best, plan that has yet been advocated for the stabilization of the price level. Though there is no definite proof that the Federal Reserve Board has been controlling the price level of recent years, it seems highly probable that the Board has had something to do with the surprising stability of prices. The prices that prevailed from 1921 and 1929 are indicated by the following index numbers (1926 equaling 100):

1921	102.9
1922	103.5
1923	99.4
1924	102.2
1925	96.7
1926	100.0
1927	104.9
1928	102.4
1929	96.5

The difference between the highest and the lowest index numbers in these years is only 8.4, and the deviation from the base year of 1926 is never more than 4.9.

We are doing our best, in modern times, to take the risk out of business life through such devices as insurance. In the past, the risks due to price fluctuations have been very great. It remains to be seen whether prices will continue to vary only slightly, as was the case from 1921 to 1929. If so, our problem of price levels would appear to be near solution. If not, it will be necessary to seek further, if this element of hazard is to be removed from economic life. The question has been raised, moreover, as to whether it is desirable to eliminate all fluctuations in price levels.

This question is answered in different ways by different persons, but we may close our discussion of the purchasing power of money by quoting a resolution passed several years ago by a group of bankers:¹ "It is the self-evident duty of the Federal

¹ Iowa Bankers' Association, in convention at Ames, Iowa, 1923.

Reserve Board to administer the Federal Reserve account in such a manner as will safeguard the nation from inflation and deflation in the future, and we heartily approve of sincere efforts being made to find and apply the best legislative method for safeguarding the purchasing power of money."

CHAPTER XIV

CYCLICAL CHANGES IN BUSINESS ACTIVITY

IN OUR examination of the purchasing power of money, in the preceding discussion, we noted that general prices sometimes undergo extensive changes over a period of years. We shall see, in the present chapter, that there are fluctuations in business activity as well as in price levels. Indeed, the two are not unrelated; but our present concern is not so much with fluctuations in prices as with changes in economic activity. Changes of this type are usually called business cycles.

THE NATURE OF THE BUSINESS CYCLE

"Business cycles are a species of fluctuations in the economic activities of organized communities. The adjective 'business' restricts the concept to fluctuations in activities which are systematically conducted on a commercial basis. The noun 'cycles' bars out fluctuations which do not recur with a measure of regularity."¹ This statement by a well-known authority is a satisfactory definition of business cycles, but it does not profess, of course, to be a description of these economic fluctuations. The nature of business cycles may be explained most clearly through the use of a chart indicating changes in industrial production.

A Chart of Business Activity.—In Figure 18 we have a graphic presentation of the business cycle as it is reflected in changes in the output of many forms of economic goods.² This chart is made up from statistics of production of pig iron, steel, and other important metals; automobiles, trucks, and tires; building materials, such as lumber and cement; electric power

¹ Wesley C. Mitchell, *Business Cycles*, p. 468. New York: National Bureau of Economic Research, Inc., 1927.

² This chart is taken from *Standard Statistical Bulletin*, 1930-31, Base Book Issue, p. 3. New York: Standard Statistics Co., Inc., 200 Varick St., 1930.

and bituminous coal; such textiles as cotton, wool, and silk; crude petroleum and gasoline; boots and shoes; paper and paper pulp; chemicals; and a number of food products. A partial list of the items going into the construction of a chart of this kind is given simply to indicate the fact that the statistics used are from many kinds of business, and from those which play a vital part in our economic life.

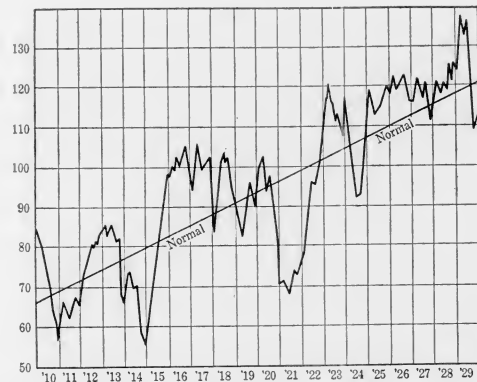


Fig. 18: THE BUSINESS CYCLE: This chart shows fluctuations in business activity, from 1910 to 1929, as indicated by a curve of industrial production in the United States for those years.

Production may be counted on ordinarily to increase in volume from year to year, because of the demands of increased population and other influences. By noting the growth in total production between two years rather widely separated (say, 1910 and 1929), and dividing this increase by the number of years, it is possible to indicate what may be termed the "normal growth" of industry during the period in question. This growth is shown in Figure 18 by a gradually rising curve labeled "normal." Had business activities between 1910 and 1929 not experienced sharp fluctuations, this curve would represent with a fair degree of

accuracy the steady, ever-increasing volume of business transactions.

But a smooth, slowly ascending curve does not picture truly the productive activity of 1910 to 1929, or of any other reasonably long period, for that matter. For experience shows that business activity fluctuates from the normal, now greatly and again but slightly. These fluctuations, as we have said, are called business cycles. Referring to our chart, we note that, during this twenty-year period, industrial activity shifted a number of times from one side of the "normal" curve to the other. It is shifts of this kind with which we are concerned in dealing with business cycles.

Length of the Business Cycle.—A study of our chart shows that the fluctuations in productive activity are sometimes great and sometimes small. There may be within a single year (such as in 1911, 1916, or 1926) a number of minor fluctuations such as those which are indicated by the curve of actual production; but changes of this kind are of relatively slight significance. The business cycle proper covers a longer period than a year, and the fluctuations in business activity are much greater than those which are shown in the curve for the three years mentioned above. The word "cycle," which has been so widely adopted in designating this particular economic phenomenon, suggests not only (as is stated in our definition) that the fluctuations recur with a measure of regularity but, further, that there is a return to a position of business activity previously occupied.

Our chart shows a decline in industrial production beginning in January, 1910, and a return to approximately the same level of productivity by the early part of 1913. In the summer of 1913 came another decline from which production did not recover for almost two years. In this recovery, however, a new height of business activity was reached by the end of 1916. Following this time there were three or four years of rather minor fluctuations, most of which, however, took place on a level higher than the "normal," as may be seen by reference to the curve depicting normal growth. About the middle of the year 1920 there was another decline in business activity which resulted in a pro-

lounced slump, carrying production far below normal; and gain a new high level was reached by the summer of 1923.

Thus we can see, without following further in detail the curve showing actual production during this twenty-year period, that the business cycle moves in wave-like motions. Not only does production tend to "come back" after it has suffered a recession, but the tendency is normally to strike a new high level of productive activity. This new level, we may once more note, is a reflection of increased demand which is due largely to growth in population, but also to increases in demand.

"Periods" of the Business Cycle.—It is customary, in describing the business cycle, to refer to several well-defined periods or phases, which appear to accompany these wave-like changes in business activity. They may be listed as follows:

1. The period of prosperity.
2. The period of industrial crisis.
3. The period of depression.
4. The period of recovery.

The Period of Prosperity.—The period of prosperity is one of great industrial activity. Prices are high and stocks of goods, called forth by the inducement of high profits, are large. In the period of prosperity there is plenty of employment for workers, and wages are naturally high. Nevertheless, strikes are not unusual in this phase of the business cycle, since the workers, knowing that labor is relatively scarce and that business men are doing well, are likely to insist upon wage increases. Business failures, of course, are at a minimum, for this is a time when business men of even ordinary ability can make good profits.

The items thus far mentioned relate to the manufacturing and commercial side of business, as contrasted with the financial side. So far as finances are concerned, there is a great expansion of bank credit during the period of prosperity. On this account, bank statements are frequently unsatisfactory; that is, they show small reserves, owing to the fact that banks have expanded credit greatly in response to the demands of business men. Because there has been a large expansion of credit and bank reserves are low, interest rates are usually high in the period of prosperity.

The Period of Industrial Crisis.—The period of industrial crisis is very unlike the period of prosperity, upon which it follows, and sometimes with startling suddenness. In this phase of the business cycle, industrial activity is definitely curtailed. Stocks of goods that have piled up during the preceding period are larger than can be disposed of readily, and as a consequence prices decline. For the same reason, and sometimes for other reasons which will be explained later, there is likely to be a good deal of unemployment. Unemployment means low wages, since it permits the employer to replace present workers with others at lower figures, if employees will not take wage reductions. Nevertheless, workers, in the effort to maintain their wage scales, are not unlikely to go on strike to resist wage decreases, so that strikes are numerous in this period. Business failures are, of course, much more common in times of industrial crisis than in times of prosperity.

Turning to the financial side of business, we find that bank credit is in process of contraction in periods of industrial crisis, since there is a tendency on the part of banks to call in their loans. This means increasingly larger reserves in the possession of the banks, so that bank statements are more satisfactory than in the period of prosperity. Because of the demands of business concerns for credit, and the hesitancy shown by banks in extending credit at this time, interest rates are likely to be high.

The Period of Depression.—Following industrial crisis comes the period of depression, during which industrial activity is at its lowest ebb. Because there is a small demand for commodities, prices of goods, also, are at their lowest. Since the demand is so slight, merchants and manufacturers are able to fill orders from stocks of goods which have been held over from the previous periods, and these stocks are depleted but slowly. The absence of extensive orders and the existence of sufficient stocks on hand make it unnecessary to keep industrial plants running, and as a consequence there is much unemployment.

Employers find it possible, during a period of depression, to force workers to take reductions in wages. Though there is a temptation to resort to strikes in order to resist wage reductions, the workers who have employment, realizing the weakness of

their bargaining position and anxious to retain their jobs, usually accept whatever terms are offered by the employers; hence there are few strikes in time of depression. This is a most difficult period in which to conduct business. Some of the less capable enterprisers are unable to survive this trying period, and business failures are numerous.

Since business is simply marking time, there is little call for bank credit and borrowings by business men are at a minimum. Former loans have been repaid, and bank statements are favorable, showing large reserves in relation to the amount of credit outstanding. The existence of these large reserves makes bankers eager to place loans, and this eagerness is manifested in low interest rates.

The Period of Recovery.—Business depression, fortunately, cannot last forever, but gives way to a phase of the business cycle known as the period of recovery. The wheels of industry begin turning once more, in order to make goods necessitated by the depletion of stocks which have gradually been purchased even in time of depression. Increased demand brings with it a rise in prices, and the prospect of good prices leads to industrial activity which soon results in a fair-sized stock of goods. Unemployment begins to disappear, since mines, mills, and factories cannot be run without workers. Wages, which had been low in the preceding period, show an improvement; and wage earners, glad to find steady employment once more, manifest but little disposition to call strikes. Business failures are much less numerous than during a period of depression; the number of bankruptcies declines steadily in this and the following period.

Now that business is improving, business men resume once more the practice of borrowing, and there is an increase in bank credit. This means, of course, that the expansion of credit by banks appears in bank statements, and the reserve percentages decline steadily as loans increase in volume. Since bankers now have numerous opportunities for lending out their funds, there is no need to offer the inducement of low rates of interest; consequently, the interest rates rise during the period of recovery because of the expansion of bank credit.

The cyclical nature of business fluctuations is indicated by the

fact that the period of recovery is followed by a period of prosperity. Thus we are brought back to our original starting point; but the height of industrial activity in this return is likely to be greater than in the preceding period of prosperity. Referring again to Figure 18, we may note once more the great irregularity in business activity, indicated by the now-rising, now-falling curve of production. It is evident, however, that the level of industrial production is distinctly higher at the end of this twenty-year period than it was at the outset.

AN EXPLANATION OF THE BUSINESS CYCLE

A great deal of attention has been given in recent years to the study of business cycles, and a number of students of this economic phenomenon have attempted to set forth the causes of business cycles. Some of these explanations are extremely ingenious and interesting, but they cannot be given here owing to lack of space.³ We must content ourselves with presenting the most plausible of these theories, and the one most generally accepted by students of economics. This is the "self-generating theory," which is commonly associated with the name of Professor Mitchell, although other economists have contributed to the theory either by developing certain phases of the explanation or by adding to its popularity through clarity of exposition.

According to the self-generating theory, "business cycles run an unceasing round, each cycle growing out of its predecessor and merging into its successor."⁴ Not only does each business cycle grow out of its predecessor, but each period of the business cycle is the result of certain causes which have developed in preceding periods of the cycle. These causes are of three types: first, industrial conditions; second, financial circumstances; and, third, psychological factors. We may see the influence of these various factors by reviewing once more the four phases of the business cycle.

³ Short statements of current theories of business cycles may be found in Mitchell's *Business Cycles* (already cited), pp. 12-47. A more detailed treatment is given in Alvin H. Hansen, *Business-Cycle Theory*. New York: Ginn & Co., 1927.

⁴ Wesley C. Mitchell in *The Stabilization of Business*, edited by Lionel D. Edie, p. 14. New York: The Macmillan Co., 1924.

Prosperity and the Trend Toward Crisis.—The period of prosperity, as we have already noted, is one in which business is booming. It is, among other things, a time of increasingly higher prices. Rising prices mean large profits for business men. Goods are produced in anticipation of demand, and if prices are increasing steadily, commodities may be disposed of at figures which are often considerably in excess of the costs of production. For the selling price of goods, in a period of rising prices, will tend to be the cost of production of such goods at the time at which the sale is made. This price may be considerably greater than the actual cost in a period of rising prices, since there have gone into the making of the commodity in question raw materials and labor purchased some time before the sale of the finished good, and purchased therefore at a relatively low price. Moreover, interest charges, salaries, and certain other items of expense almost never keep pace with rising prices. The net effect of these conditions is that profits are large when prices are on the up-grade.

Since business men are anxious to reap these high profits, they make every effort to expand production in times of rising prices, and on this account stocks of goods, employment, and wages are usually at their height in a period of prosperity. The truth is that toward the end of this period the industrial bubble is about ready to burst. Expansion in the production of goods is matched by an expansion in financial activity. The one, of course, has given rise to the other, for bank credits are expanded to their limits only when business is or has been booming.

The psychological attitude during the greater part of the period of prosperity is one of optimism. Business men, since they are making large profits, are naturally optimistic. But by and by there comes a time when this optimistic attitude may be assumed rather than real. Captains of industry sometimes whistle in order to keep up their courage. Though they wish for and talk much about continued prosperity, they begin sooner or later to be fearful that the peak of industrial activity has about been reached. They know from experience that business activity runs in cycles, and that periods of prosperity are followed by industrial crisis and depression. With the boom fully expanded, and with doubt

and uncertainty in the air, it sometimes requires only a slight jar to change the period of prosperity into one of industrial crisis.

Crisis and the Beginnings of Depression.—It is possible that in one or more lines of manufacturing there has been too great production, due to the desire of business enterprisers to make large profits while prices are high. There may be, for example, an overproduction of automobiles, or radio sets, or some other article manufactured on a tremendous scale. When sales fail to keep pace with production, the natural tendency is to curtail production. An oversupply of automobiles might easily result in the closing of the plants of one or more of our leading automobile manufacturers. An action of this kind throws out of work many thousands of wage earners. Not only is the purchasing power of these workers reduced, with a consequent depressing effect upon other industries, but a move of this kind is interpreted by many other business men as a sign that the period of prosperity has come to an end.

Other manufacturers decide upon a curtailment of their productive operations. Merchants having large quantities of goods on hand offer them at lowered prices in order to reduce their stocks and obtain funds. Manufacturers, now unable to sell at former high prices, demand that workers submit to reductions in wages. In the effort to resist wage cuts, employees resort to strikes, and again purchasing power is curtailed. Bank credit, which had been stretched to the utmost, is now contracted; for bankers, in view of the unsatisfactory industrial conditions, are anxious to call in their loans. But business men find it difficult to meet their financial obligations as these loans are called. In their effort to secure the necessary funds, manufacturers and merchants sacrifice stocks of goods on hand, and offer to pay high rates of interest for loans which will tide them over the emergency. Despite their best efforts, many are unable to weather the storm and go down in bankruptcy.

The mental attitude of business men, in the period of industrial crisis, is naturally one of doubt and fear. Not knowing what the immediate future will bring forth, they hesitate to put into execution whatever projects they may have had in mind during

the period of prosperity; and lack of action leads to the next phase of the business cycle, the period of depression.

Depression and the Move Toward Recovery.—This period, as we noted in an earlier description, is one which finds business virtually flat on its back. Tendencies which were apparent in the period of crisis have been allowed to run their course, with the result that production has come almost to a standstill. The psychological atmosphere of the period of depression is one of extreme pessimism. With business in a state of suspended animation, no one seems to know just what steps should be taken to bring it back to life. And yet, if the self-generating theory is sound, it is in this very condition of business prostration that the causes which lead to the next phase of the business cycle, the period of recovery, must be sought.

Recovery and the Causes of Prosperity.—It is probable that the starting point of revival is usually the exhaustion of stocks of goods. It may be that the surplus of automobiles, which we suggested as bringing to an end the period of prosperity, has slowly been disposed of, and that there is again a demand for cars which will be available only if automobile plants resume production. An announcement from Mr. Ford or the General Motors Corporation that operations are to be resumed, and employment given to a hundred thousand men, would stimulate activity in businesses of all kinds.

Such an announcement would appear to many to herald the turning point of the tide. It is the final word for which the less venturesome have been waiting. Enterprisers throughout the country again take heart, and factories here and there resume operations or, in some cases, go on "full time" after a period of curtailed production. Workers are available at low wages at the outset of this period, materials may be had at bargain prices, and banks, because of their large reserves, are anxious to extend credit at moderate rates of interest. These particular advantages are likely to disappear as the revival of business makes considerable headway. That is to say, wages increase, interest rates rise, and other expenses advance, as production assumes normal proportions. However, the attitude of business men is now one of increasing courage and optimism as regards the future. It is felt

that the "slough of despond" has been passed, and that the months ahead hold bright prospects.

The process of recovery may be a relatively slow one, but in the course of a year or so machines are once more humming and the business cycle passes by almost imperceptible steps into the period of prosperity. Thus we find that in each of these several phases of the business cycle are the conditions which almost inevitably bring about the succeeding phase.

THE STABILIZATION OF BUSINESS

It is not suggested that the self-generating theory of business cycles provides a complete explanation of this particular economic phenomenon. Professor Mitchell himself, who has done more than any other writer to popularize the notion that business cycles are self-generating, admits that many other theories of business cycles have in them a good deal of truth.

The Need for Stabilization.—But whatever the exact causes may be, it seems fairly clear that society would be better off if fluctuations in business activity could be avoided, or at least be made less violent. For these fluctuations bring uncertainty and fear; gains to some and losses to others; overexpansion of production in times of boom and bankruptcies in periods of industrial crisis and depression; unemployment and consequent loss of income to workers; and other results that disturb and interfere with economic well-being.

Why, then, are these sharp fluctuations in business permitted to take place? Why, having lived through the various phases of the business cycle, including those distressing periods of industrial crisis and depression, do not the persons affected determine to correct the situation, so far as the future is concerned, by removing the causes that are responsible for wide variations in business activity?

Delays in Seeking a Solution.—There are several possible answers to questions of this nature. It appears, in the first place, that interest in the control of business fluctuations, as in the abolition of war, depends largely upon the urgency of the situation. When the hardships of business depression or of war

are being experienced, the need for preventing the recurrence of such catastrophes is generally recognized; but those affected are so busily occupied with meeting the immediate emergency that they give but little thought, at the time, to devising preventive policies for the future. When the emergency has passed and the period of recovery or reconstruction has set in, the demands of the present again loom up as all-important; and, since corrective measures have not been adopted, the forces that formerly brought disaster are again allowed to run their course, and before very long another crisis is imminent.

The Impotence of Wage Earners.—For more than a century we have had these ups and downs of business activity in the United States; and in this hundred-year period the country has experienced at least a dozen major cyclical movements in business activity, as well as a large number of minor fluctuations. Among those who are hardest hit, by reason of recurrent periods of unemployment, are the wage earners of the country. And yet it seems that there is little or nothing that the wage-earning groups can do in order to bring about stability of business and regularity of employment.

Wage earners are in the position of having to take orders; it is the business men of the country, our enterprisers, who are in positions of authority which enable them to determine the pace at which business shall proceed. Whether or not our business men can be shown the desirability of controlling production, so that it may not expand unduly and bring in the course of time the inevitable reaction, remains to be seen. We have noted the fact that the period of prosperity is one of large profits, and it is questionable whether the average business man would willingly curb his desire for immediate profits merely because of the likelihood that excessive business expansion will be followed by a period of economic stagnation.

Business Leaders and Business Statistics.—Even if business men were disposed to prevent production from exceeding the limits of safety, it would often be difficult for them to know when the limits had been reached.

It is true that there are the business records of previous years, from which may be learned something of the likely trends in the

future. But no two business cycles are exactly alike. It was thought, for some time, that these wave-like movements of business activity lasted about ten years from beginning to end; and at least two interesting theories were built up on the notion of periodicity. It has been found, however, that business cycles vary in length; and some economists contend that they are becoming shorter all the time. Moreover, the phases or periods of one cycle are oftentimes quite different from those of another cycle. A depression, for example, may last only a few months, or it may extend over a year or two. As a result of these irregularities, enterprisers who might wish to avoid an unwarranted expansion in production are often puzzled to know at just what time expansion should be restrained.

The interest of business men in gaining knowledge of this kind is manifested in the growth of agencies that make statistical studies of business activity, and on the basis of their data undertake to forecast business conditions in the future. Work of this kind is improving in quality and increasing in popularity, and it seems probable that business men may eventually have placed before them information which will be of genuine assistance in reducing the violence of changes in economic activity.

Elimination of Financial Panics.—One distinct improvement which has been in evidence since 1914 is the elimination of financial panics. Prior to the introduction of the Federal Reserve System, it was not uncommon for the industrial crisis to be accompanied by a wild scramble for credit with which business enterprisers sought to weather the storm of liquidation. Their inability to get temporary extension of credit, despite the fundamental soundness of their businesses, resulted in many bankruptcies. Furthermore, the inability of banks to call in loans frequently made it impossible for these banking institutions to meet their obligations, and as a result bank failures were not uncommon.

We have seen that one of the primary functions of the Federal Reserve System is to extend credit in time of emergency. The power of a business man or bank to secure credit in a period of industrial crisis may mean the rescue of a thoroughly sound organization which would otherwise go down in defeat. There

can be no doubt that the Federal Reserve System has done a great work in rendering financial aid in critical phases of the business cycle.

Stabilization and the Federal Reserve System.—There are many persons who think that the Federal Reserve System should extend its powers and attempt to prevent overexpansion of business by discouraging borrowing whenever economic activities seem to have reached the limits of safety. One of the characteristics of the period of prosperity is a great increase in the volume of bank credit, without which there would be less of a business boom. This expansion of credit is possible because the commercial banks which are members of the Federal Reserve System are themselves able to get an extension of credit through the rediscounting of commercial paper.

If the Federal Reserve Board, following its traditional policy of seeking the public welfare, should raise the rediscount rate gradually (and if necessary, materially) whenever a further increase in business appeared to be undesirable, it would seem that this advance in the interest charge might discourage further extension of credit and thus check unwise business expansion.

An attempt of this kind on the part of the Federal Reserve Board would doubtless call forth protests from a great many business men. There would be objections from those who would question the ability of any board to decide rightly the proper time at which to discourage borrowing, and from others anxious to reap large profits even at the expense of business expansion which might eventually lead to depression.

If a change in the rediscount rate should prove to be effective in retarding business expansion, there would be need for absolute confidence in the integrity and disinterestedness of the members of the Federal Reserve Board. For interference with business processes, which might affect seriously the fortunes of certain individuals, could scarcely be justified except on the ground of a genuine benefit accruing to society through the regulatory action of the Board.

Price Control and Stabilization.—Professor Irving Fisher emphasizes the close relationship between increasing prices and undue development of business. He even goes so far as to suggest

that if we could stabilize prices, we should do away with the strongest temptation to expand business beyond the safety point. For undue expansion, he says, results from the knowledge that abnormally large profits may be made in times of rising prices. If this theory is sound, then the control of the amount of credit by manipulation of the rediscount rate should have a stabilizing effect upon, first, the price level, and, second, the desire to expand business.

It would appear that an increase in the rediscount rate at the "proper moment" might be expected to affect the situation in two ways. First of all, it would help to stabilize prices and thus put an end to exceptional profits; and it would, moreover, reduce the volume of credit available for the use of business men, and thus tend to hamper the further extension of business activities.

Stabilization Through Public Works.—Another suggestion which has been offered for lessening the violence of fluctuations in business is the development of public works at times when private industry is depressed. The construction of roads/bridges, public schools, courthouses, post offices, and many other kinds of public buildings might oftentimes be done to relieve periods of business inactivity. Some forms of public work, no doubt, must be attended to without delay. It would seem foolish, for example, to wait for a business depression if the construction in question were that of a school building, and if delay meant inadequate facilities for a number of years.

But there are many kinds of public construction which could just as well be carried on when industry in general is inactive and workers by the thousands are seeking employment. This, indeed, appears to be the sensible time at which to build public works, if only from the point of view of expense; for bridges may be built and roads constructed at a much lower cost in periods of depression than at times of industrial boom. In the past, our practice in this respect has been to ignore almost wholly the possibilities of building public works at low prices, and at the same time providing workers with a much needed opportunity to secure income through the performance of useful service.

If municipal, state, and federal officials were authorized to give due regard to industrial conditions in the placement of large orders, and if they exercised this authority wisely, much could be done to alleviate the suffering which so often accompanies major industrial depressions.

Proposals for Reducing Unemployment.—Numerous other suggestions for the stabilization of business have been offered. It is proposed, for example, that employers be required to take out unemployment insurance for those working in their establishments. It is believed that if this were done, the cost of such insurance would act as a powerful incentive to employers to stabilize their individual businesses, keeping production adjusted to a more uniform pace from month to month and year to year. For if business men were required to provide unemployment insurance, they would soon learn that the rates they paid were dependent upon the frequency of the periods of unemployment and the duration of such periods. Under these conditions, it would appear to be to the best interests of employers to iron out the inequalities in their production curves, and attempt to avoid serious business fluctuations.

Still another proposal, and the last which we shall be able to touch upon, relates to providing jobs for men who are thrown out of employment in times of business depression. It is claimed that public employment agencies should be established for the express purpose of securing employment as promptly as possible for workers who are laid off in times of business depression. At the present time, most of our employment agencies are privately conducted for personal gain, and their facilities for securing information regarding the condition of business in various parts of the country are limited. It would seem that something of this kind might well be done to lessen the hardship brought upon workers in periods of industrial crisis and depression.

CHAPTER XV

INDIVIDUAL PRICES: SOME GENERAL CONSIDERATIONS

Specialization and Exchange.—We have already noted the fact that specialization is one of the important characteristics of modern economic life, and that it is very closely tied up with exchange. Through the process of specialization individuals produce much more of certain commodities and services than they personally are able to use; but, on the other hand, they have need of other commodities and services, the production of which they have left to other persons. In order to obtain the necessities of life, the individual must exchange his surplus of commodities or services of a certain kind for portions of the surpluses of others.

The farmer, for example, though he comes closer to being self-sustaining than does the average type of producer, will take wheat, potatoes, and other products which he has raised in large quantities and exchange them for building materials, farming implements, fertilizers, hardware, clothing, groceries and other goods essential to his well-being. In like manner, specialization leads to surpluses of all kinds of goods in the hands of their producers, and these surpluses are distributed to other members of society through the process of exchange.

The Conditions of Exchange.—Exchange, however, can take place only in the presence of certain conditions which may be listed as follows:

1. The desire for certain economic goods.
2. The possession of something of value¹ which will be acceptable to the person now owning the goods that are desired.
3. The willingness to give this article of value in exchange for the goods desired.

¹ We here assume that the expression "something of value" includes money. Compare pp. 15-17 and p. 271.

4. A comparison of the satisfaction to be gained by acquiring the goods that are desired, and the sacrifice involved in giving up the goods now possessed (which must be paid as a price for the goods desired).

Reverting to the illustration of the farmer in a preceding paragraph, we see that the situation there pictured meets these four requirements. First, the farmer desires certain economic goods which he can use in carrying on his business of farming and in caring for himself and his family. Second, he possesses articles of value (wheat and potatoes in excess of his personal needs) which will be acceptable to other persons. Third, he is willing to give up these surplus goods in exchange for the goods which he wishes to acquire. Fourth, he goes through a process of weighing the relative merits of the goods which he desires and those which he possesses, and through this process he formulates a concept of the value of the various items under consideration; that is, he arrives at a knowledge of the importance of the commodities which he wishes to obtain as expressed in terms of wheat and potatoes.

Exchange and Value.—The term "value" means, therefore, a ratio of exchange. This fact is made clear by the use of a term—"exchange value"—which is frequently employed in economic discussion. Value, then, is nothing more or less than the power of a good to command other goods in exchange. If ten bushels of potatoes exchange for one hat, the value of the hat is obviously ten times the value of a bushel of potatoes. And if a hat exchanges for five bushels of wheat, it is clear that the value of wheat per bushel is twice as great as the value of potatoes.

It should be noted, however, that value applies to a given grade or quality of a given commodity, and not to that commodity in general. For example, there may be a half-dozen grades of potatoes, with a separate value for each grade. It is entirely possible for two grades of potatoes to differ more widely in values than, let us say, potatoes of a certain grade and wheat of a certain grade differ in value. It would be just as inexact to speak of "the value of potatoes" as to speak of a "man's wage." There are many grades of potatoes, and therefore many values for potatoes, just

as there are different grades of workmen with consequent differences in wages.

Barter and Money Exchange.—The conditions of exchange which have been referred to above apply in both barter and money exchange. It is quite possible that the farmer in our illustration has been engaging in barter, since there has been no mention of the use of money. At any rate, he personally has complied with the four conditions of exchange, and has transacted business with other persons who likewise have met these four conditions.

For every exchange is, of course, a two-sided arrangement. Each party to the exchange desires economic goods possessed by the other, and is willing to make a trade. There now comes what is termed in legal phraseology "a meeting of minds," which represents the fourth condition of exchange. The parties concerned weigh the relative advantages of retaining and giving up the goods which they possess, and in this process is developed a ratio of exchange which determines how much of one good shall be surrendered for a certain amount of the other.

In a free exchange both parties gain. That is to say, each gives up that which he esteems less highly for the thing which he esteems more highly; and this general principle holds good whether the exchange is simply a trading of possessions on the part of two boys, a sale and purchase made in a local store, or the long-distance type of exchange known as international trade.

Value and Price.—We noted at some length, in an earlier chapter, a number of reasons for expressing values in terms of money; and values are ordinarily so expressed. The result is called price, for price may be defined as value expressed in terms of money. Business men and economists alike usually fall back upon prices when making statements about values, for the reason that to express the values of commodities in terms of other commodities is always a cumbersome process and is sometimes very confusing.

Prices are accurate measures of values *at any given time*. But they are poor measures of values *at different times*. If, for example, the price of a commodity at one time were compared with the price of the same commodity at another time, it would

be impossible to tell whether there had been a change in the value of the commodity, without knowing whether there had been a change in general prices, commonly spoken of as the price level. This is the case because money itself sometimes changes in value. We have already noted changes of this kind in our treatment of price levels. When prices in general rise the value of money declines, and *vice versa*. Over considerable periods of time, one cannot be certain, without actually investigating the situation, that there has not been an important change in the price level—that is, in the value of money. And if there has been such a change, price as an expression of value is virtually worthless.

For example, the price of cotton in 1920 was almost three times as high as in 1913. But much of this advance in price is accounted for by a decline in the value of money, and not by an increase in the power of cotton to command other goods in exchange. Expressed in terms of commodities other than money, the value of cotton was by no means three times as great in 1920 as in 1913.

Nevertheless, in our present treatment, it will be convenient to express values in terms of money, and we shall so express them. If we are dealing with long-time periods, it must be understood that we are assuming that there has been no change in the value of money during the period referred to—that is, that there has been no change in price levels. It may be mentioned in this connection that in the many exhaustive studies of prices made by various agencies in the past dozen years, care has usually been taken to "correct" the prices used, so that readers may not be misled by changes that are due to fluctuations in price levels. When corrections of this kind have been made, it is permissible to use prices to express values even over long periods of time.

The Use of Charts in the Study of Price.—The student of economics who wishes to master the principles of price determination will do himself a kindness if he undertakes from the very outset to express his problems in the form of graphs. Not only does this method of approach render less difficult the study of one of the most troublesome phases of economic theory, but it has the added advantage of helping one to retain in mind the essential features of the principles covering the determination of

prices. On this account we shall go briefly into the making of demand and supply curves, and show how they are used to indicate market price under competitive conditions.

Demand Schedules.—An exhaustive study of cotton prices published recently by the United States Department of Agriculture² provides us with data from which we may draw up a demand schedule and construct a demand curve. A demand schedule (which we shall call "demand") is a series of quantities of an economic good which, at a given time, will be purchased at a corresponding series of prices. Modified slightly, the government figures referred to give us the following demand schedule:³

At 40 cents a pound, 10 million bales of cotton will be purchased.

" 35	"	"	"	11	"	"	"	"	"	"	"
" 30	"	"	"	12	"	"	"	"	"	"	"
" 25	"	"	"	13	"	"	"	"	"	"	"
" 20	"	"	"	15	"	"	"	"	"	"	"
" 15	"	"	"	18	"	"	"	"	"	"	"
" 10	"	"	"	23	"	"	"	"	"	"	"

Supply Schedules.—Though the Department of Agriculture does not provide a supply schedule, we may construct a hypothetical schedule for ourselves, assuming that cotton will be offered for sale by dealers in the following quantities at the prices given:

At 10 cents a pound, 5 million bales of cotton will be offered for sale.

" 15	"	"	"	12	"	"	"	"	"	"	"
" 20	"	"	"	15	"	"	"	"	"	"	"
" 25	"	"	"	18	"	"	"	"	"	"	"
" 30	"	"	"	20	"	"	"	"	"	"	"
" 35	"	"	"	21	"	"	"	"	"	"	"
" 40	"	"	"	22	"	"	"	"	"	"	"

² Bradford B. Smith, *Factors Affecting the Price of Cotton*, Washington: United States Department of Agriculture, Technical Bulletin No. 50, January, 1928.

³ Strictly speaking, a demand schedule is made up of quantities and prices at a given time. The figures here used were compiled from the experiences of a number of years. Thus it is not a *true* demand schedule, in the exact economic sense of that term. But it is entirely satisfactory for our present purposes, and its use should not lead to confusion. All that we have done is to ignore the time element, in using these data. The difficulties of "extracting" the factor of time in the construction of demand schedules may be seen by reference to Henry Schultz, *Statistical Laws of Demand and Supply*, Chicago: University of Chicago Press, 1928.

Thus we see that a supply schedule (which we shall call "supply") is a series of quantities of an economic good which, at a given time, will be offered at a corresponding series of prices.

Demand Curves.—These schedules may readily be converted into demand and supply curves, the demand curve appearing as in Figure 19.

It will be noted that prices are plotted along the vertical line OY, and quantities (bales, in the present instance) along the horizontal line OX. The demand schedule supplies the data for the placing of a number of points, each point indicating both a

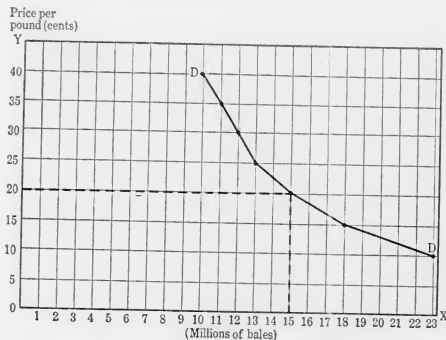


Fig. 19: A DEMAND CURVE: Charted from a demand schedule.

price and a quantity. The position of each point is determined by the intersection of two imaginary lines drawn perpendicularly to OY and OX from particular price points and quantity points, respectively. The dotted lines in Figure 19 indicate the perpendiculars that fix the position of the point for 15,000,000 bales at 20 cents a pound. When a point has been supplied in like manner for every item listed in the demand schedule, these points are connected by solid lines, and the demand curve is complete (see DDD). Though only seven prices appear in our illustration, it will

be understood that a demand curve may have an infinite number of quantities and corresponding prices.

Supply Curves.—The supply schedule may likewise be made into a curve with the following result:⁴

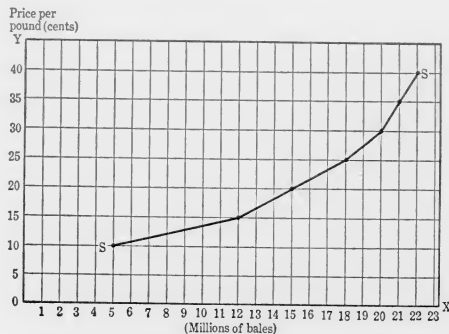


Fig. 20: A SUPPLY CURVE: Charted from a supply schedule.

Equilibrium of Demand and Supply.—We see illustrated in these two curves the generally known facts that increasingly larger quantities of an article will be purchased as prices go down; and that increasingly larger quantities will be offered as prices go up. Combining the two curves in a single chart (see Figure 21), we get an equilibrium of demand and supply at the point P, the distance of which from the horizontal line, OX, indicates market price, which is sometimes referred to as equilibrium price.

We shall postpone, for later treatment, a consideration of the factors that affect the demand and supply schedules and hence the demand and supply curves. These factors will be understood all the better if we first examine Figure 21 somewhat closely,

⁴ The SS curve in Figures 20 and 21 does not have any necessary relation to costs of production, but merely shows the prices at which various quantities will be offered by sellers. The supply curve for long-run supply (which will be described later) shows also the average costs per unit of the several quantities that appear in the supply schedule.

giving particular attention to the position of the point P, which is the intersection of the demand and supply curves, and the point indicating market price. It will be remembered that this point also marks the intersection of two perpendiculars drawn from the vertical line OY and the horizontal line OX, respectively. This being true, the line AP, measuring price, must equal its parallel OB, and the price per pound at which 15 million bales of cotton will sell is 20 cents.

P is the only point on the chart at which the demand and supply curves meet; that is to say, 20 cents a pound is the only price

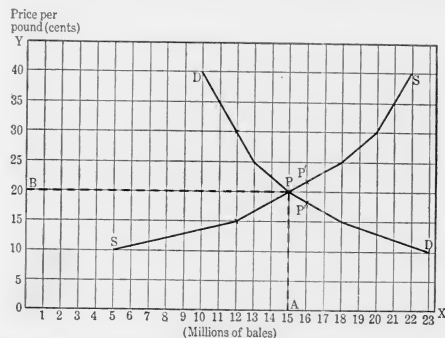


Fig. 21: MARKET PRICE: Arrived at through the equilibrium of supply and demand.

at which buyers are willing to buy exactly the same amount that sellers are willing to sell. It is the one and only price in the demand and supply schedules (and consequently in the demand and supply curves) at which 15 million bales of cotton will be both offered and purchased. It is the outcome, on the part of buyers and sellers, of the comparison of satisfactions and sacrifices, which has been set down as the fourth condition of exchange essential to an actual trade transaction.

The Process of Bargaining.—What takes place, in effect, is a process of bargaining. Sellers would like to secure as much as 22

cents a pound (see P') or even more, and they may at first ask a high price; but they soon discover, from the sluggishness of the market, that unless they lower the price they will be left with very considerable quantities of cotton on their hands. They then proceed to weigh the relative advantages of disposing of their holdings at once at a reduced price, or, on the other hand, of retaining their holdings for a time in the hope of obtaining a better price.

In reaching a decision, the sellers ask themselves some such questions as these: What are the chances that the price of cotton will go up instead of down? How promptly is the higher price likely to be obtainable? How much will the storage charges for this period amount to? Is there a probability that the cotton will deteriorate in the mean time, and if so, to what extent? And so on. If, having surveyed the present situation and taken into account future prospects, the sellers of cotton come to the conclusion that it would be unwise to postpone the sale of their holdings, they will gradually reduce their quotations, and their asking prices will begin to move slowly toward the point P.

Buyers, on the other hand, may try to buy at as low a price as 18 cents (see P''), but, discovering that purchases cannot be made at this price, they gradually increase their bids, so that demand prices likewise move slowly toward P. The final outcome, if our chart represents conditions accurately, is a meeting on the common ground, P, which is usually called the *equilibrium of demand and supply*. The point P, as we have said, indicates market price, or equilibrium price. These two terms may be used interchangeably. It may be added that, whatever the exact details of the case may be, it is always through an equilibrium of demand and supply that price is determined.

A Note on "Margins."—Since we shall find it necessary, from time to time, to employ the words "margin" and "marginal," we may well pause at this point to explain their significance in economic usage.

We have already spoken of the intensive and extensive margins of cultivation in the use of land, and may here recall the fact that these margins are stopping points, or limits, beyond which, at a given time, cultivation is not carried. Indeed, the word

"margin" in economic discussion has always to do with a limit, or boundary, of some kind or other. When, for example, an equilibrium of supply and demand (such as that shown in Figure 11) is reached, we have a definite stopping point, or margin, from which we may take illustrations of several marginal concepts.

To begin with, we have at this point of equilibrium, *P*, both marginal demand and marginal supply. *Marginal demand* is the quantity of a good which will be purchased at the equilibrium price, and *marginal supply* is the quantity which will be offered at this price. The last unit of the good to be taken at this price and likewise the last to be offered (the fifteen millionth unit in the present case) is known as the *marginal unit* of demand and supply, respectively. The marginal unit is the unit which would remain unsold if the price were even a trifle higher, and which would not be offered for sale if the price were even a trifle lower. The *marginal buyer* is the person who is just induced to make the purchase of the marginal unit, and the *marginal seller* is one who is just induced to give up the marginal unit at the price available.

The price at which this marginal unit is purchased is the *marginal demand price*, and the price at which the marginal unit is sold (which is, of course, the same figure as that at which the marginal unit is purchased) is the *marginal supply price*. The utility of the marginal unit (which will be dealt with in detail in the next chapter) is known as *marginal utility*. In our discussion of the distribution of income, we shall refer frequently to *marginal productivity*, the meaning of which will be explained fully at that time. Finally, it is sometimes desirable (though not in the present illustration of equilibrium) to consider the different costs at which different units of a good are produced; and in such instances the term *marginal costs of production* is used to indicate the costs at which the marginal unit is produced.

Meaning of the Term "Market."—It should now be explained that the word "market" is employed in a special sense by economists. To most persons this term suggests a definite place (perhaps a building) in which buyers and sellers come together for the transaction of business. The economist, however, uses the word to include any region, however large or small, in which

buyers and sellers are so situated that they may engage freely in the purchase and sale of a given commodity. The market for fresh vegetables, for example, is often a very restricted one, due to the perishability of these goods, and may be limited to a small village. But such commodities as wheat and cotton, which are in demand in many countries and may be transported safely for great distances, are bought and sold in a *world market*.

The essential elements of a market, then, are the possession of accurate information on market conditions by the parties concerned, and the ability to deliver the goods promptly and safely once a sale has been made.

Market Demand and Market Supply.—We shall have occasion, in our treatment of price determination, to use two further terms which require a few words of explanation. They are "market demand" and "market supply." We have spoken of a demand schedule (or demand) as being a series of quantities of an economic good which will be purchased at a corresponding series of prices. *Market demand* is represented by a single point of a demand schedule; that is, it is the quantity of an economic good which will be *purchased* in a given market at a specified price. In like manner, *market supply* bears a similar relation to the supply schedule; it is the quantity of an economic good which will be *offered* in a given market at a specified price.

The Importance of Competition.—Market price is arrived at through a process of bargaining, and bargaining is seen at its best only when there is competition among sellers to dispose of their goods, and among buyers to get possession of these goods. Most of our discussion of price determination will assume the existence of free competition. But competition, it must be confessed, is not always free and unhampered. It sometimes, though not often, happens that potential buyers, deciding that prices are too high, agree among themselves not to make purchases until prices are lowered. The effect is to bring the prices down, a result which is brought about when sellers find it imperative to secure funds with which to meet their financial obligations. There were several instances of concerted action of this kind during and following the World War.

Much more common than agreements among buyers are those

among sellers of goods, which have the effect of raising prices through a shrewd regulation of the quantity of a given commodity that is offered for sale. This practice, carried to its extreme, gets into the field of monopoly; and monopoly price (as we shall see later), though determined by conditions of demand and supply, is peculiar in that supply is artificially controlled, being in the hands of a single seller, or of very few sellers. Under monopoly conditions there is bargaining between seller and buyer, but the buyer bargains at a disadvantage because of the absence of competition among sellers. This, however, is a special instance of price determination. Except when monopoly price is being considered, we assume, in the determination of individual prices, the existence of perfect competition between buyers and sellers.

It will be well, at this point, to emphasize the fact that the only way that price can be influenced is through some action affecting either the quantity of a commodity that purchasers are willing to buy or the quantity that sellers are willing to offer. If consumers wish to beat down the price of a good through unified action, they must do it by limiting their purchases, that is by bringing about a decrease in demand such as is illustrated in Figure 22 in the present chapter. Sellers, moreover, can secure higher prices only by decreasing supply, as is shown in Figure 23. This statement applies equally to competitive and monopoly conditions. We see, then, that supply and demand are all-important factors in the determination of individual prices.

The Law of One Price.—If buyers and sellers in a given market are well informed (as is implied in the economic concept of a market), and perfect competition exists (as is also assumed except when monopoly price is being considered), we have the ideal conditions which lead to the operation of the Law of One Price. This law states that there can be but one price for a given article in a given market at a given time. Reverting to the chart illustrating the conditions of demand for and supply of cotton, we may ask why, since *some* buyers could (and would, if necessary) pay more than 20 cents a pound for cotton, the *total quantity* disposed of must sell at so low a price as 20 cents; and why, on the other hand, since *some* sellers, if necessary, would

sell at less than 20 cents, all of the cotton sold brings so high a price.

The answers lie in the fact that no buyer will pay more than necessary, and no seller will take less, and as a consequence, 15 million bales can be disposed of only if the price is 20 cents. If this quantity were thrown upon the market at different times, different prices might be paid, but competition among sellers prevents this method of marketing. If, for example, only 12 million bales were first offered for sale, they would be taken at 30 cents a pound, as is shown by the chart; but the dealers having the remaining three million bales, anxious to share in this high price and willing to accept any figure not lower than 20 cents, would quickly throw their holdings upon the market, and the price would inevitably drop to 20 cents. As a consequence of this method of marketing, there can be (with a very few exceptions) but one price—a price which is dictated by the relative conditions of supply and demand. Competition among buyers tends to force the price up, and competition among sellers tends to drive it down.

Deviations from Market Price.—Though 20 cents a pound is the price at which the great bulk of this quantity of cotton must sell, this does not mean that there will not be occasional cases of sales at prices either higher or lower than 20 cents. For the equilibrium of demand and supply is arrived at through the trial and error method known as bargaining. In the process of bargaining it is entirely probable that some few buyers, in order to be certain of getting enough cotton to meet their needs and not knowing just how low the price will go, will make their purchases before the actual equilibrium takes place, and as a result will pay a somewhat higher price than would have been necessary a little later, say, as much as 21 or 22 cents. It is likewise possible that some sellers, willing to take a lower price than 20 cents, if necessary, will dispose of their individual supplies of cotton at a little less than they might be able to secure, were they to hold out somewhat longer.

For the demand and supply curves show clearly (as has already been pointed out) that some buyers stand ready to buy at a higher price than 20 cents, if it should seem necessary to pay more than

that amount; and these curves show, further, that some sellers will sell at less than 20 cents, if doubt arises as to their ability to secure so high a price. However, these unwise and unnecessary sales and purchases will be relatively few; and it seems probable that, as a usual thing, the sales which take place at prices above the point of equilibrium are counterbalanced by those that take place at prices below that point. These deviations from the market price dictated by the true conditions of demand and supply are due, of course, to imperfect competition, which is attributable in turn to ignorance of actual market conditions. Market price, then, is an "ideal" price which would prevail under conditions of perfect competition. In the absence of ideal conditions, *actual prices* fluctuate about market price, some sales taking place at exactly that figure, but others at a somewhat lower price and still others slightly above market price.

"Stock" and "Supply."—Economists frequently distinguish between a *stock* of goods and a *supply* of goods. A stock is the total quantity of a given commodity in existence in a given market at a given time, whereas supply is a series of quantities of the commodity that will be offered for sale at a corresponding series of prices. The term "stock" has no relationship to price; but there is no such thing as "supply" (in the economic sense of the term) apart from price.

The distinction usually made between stock and supply relates to *market supply*, and not to the *supply schedule* to which reference was made in the preceding paragraph. Since market supply is the quantity of an economic good which will be offered in a given market at a *specified price*, it is in most cases clearly different from stock. It is true that some goods are produced with the thought of immediate sale, and in these rare instances the terms "stock" and "market supply" may be said to refer to identical quantities of goods. It is conceivable, also, that if a phenomenally high price were offered for any good, the total stock would be thrown on the market at one time, and thus stock would become market supply.

There are, however, many instances of considerable portions of a given commodity being held as a *stock* for weeks or even months. From this stock certain quantities are taken from time

to time, and definitely offered for sale. By definition, these quantities, as they are thrown upon the market, become *market supply*. Thus we may have a more or less continuous process of stock being converted into market supply. In the long run, of course, stock is bound to become market supply, for goods cannot be withheld from the market indefinitely. We shall have occasion to refer again to the distinction between stock and market supply, in the next chapter, in our discussion of price determination under conditions of fixed supply.

The Law of Supply and Demand.—It is evident, from what has been said, that price is the result of certain interactions of supply and demand. These important forces, supply and demand, will be examined with some care in the next four chapters. We may well conclude these general observations on price determination with a generalization known as the Law of Supply and Demand. This law states that value (or price) varies directly with demand, and inversely with supply. [The reference is to schedule supply and schedule demand.] Expressed in non-technical language, this means that if supply remains constant an increase in demand will result in a higher price, whereas a decreased demand will bring a lower price; and if demand remains unchanged an increase in supply will result in a lower price, but a decreased supply will drive the price up.

In actual experience, of course, neither demand nor supply is likely to remain absolutely unchanged; but it is not difficult to find instances of one of these forces increasing or decreasing much more rapidly than the other, with the effects that are predicted in the Law of Supply and Demand. At the outbreak of the World War, for example, there was a pronounced falling off in the demand for cotton, owing to a decline in the manufacture of cotton cloth in England and elsewhere, with the result that cotton prices slumped; at the same time, there was a tremendous increase in the demand for steel which was required for munitions, shipbuilding, and so on, and prices for steel rose to unprecedented figures. Here we have concrete examples of the truth of the statement that price varies directly with demand. That price varies inversely with supply is illustrated by the behavior of dye prices during the war. With the supply greatly

restricted because dyes could not be imported from Germany, the price in the United States soared to dizzy heights. But an increase in supply depresses price. An unusually large crop of apples, or other agricultural product, again causes price to vary inversely with supply; and in a case of this kind, since supply is increased, the price of the commodity is driven down.

The tendency of price to vary directly with demand and inversely with supply is shown graphically in the two simple diagrams given below. The charts show hypothetical conditions of supply of and demand for sugar in a given market. In Figure 22 the equilibrium price, or market price, as indicated by the intersection of the supply and demand curves, is $12\frac{1}{2}$ cents a pound. If, now, supply remains fixed while demand shifts, we find that

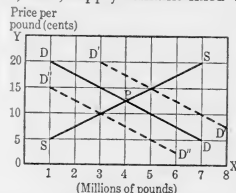


Fig. 22: PRICE CHANGES CAUSED BY CHANGES IN DEMAND.

price moves *directly* with demand. If demand increases, as is shown by the curve $D'D'$, price increases to 15 cents a pound. If demand decreases, as is indicated in the demand curve $D''D''$, price also decreases, and sugar sells at 10 cents a pound.

Figure 23 illustrates the second part of the Law of Supply and Demand. In this diagram, demand remains constant while changes in supply take place. If supply decreases, as is shown in the $S'S'$ curve, the price rises from $12\frac{1}{2}$ cents to 15 cents; and if supply increases (see $S''S''$) the price declines from $12\frac{1}{2}$ cents to 10 cents a pound. Thus we see that price varies *inversely* with supply.

Value is the power of a good to command other goods in exchange.

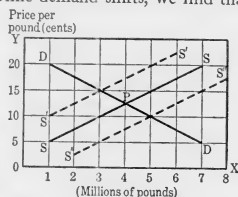


Fig. 23: PRICE CHANGES CAUSED BY CHANGES IN SUPPLY.

Price is value expressed in terms of money.

Demand (that is, *schedule demand*) is a series of quantities of an economic good that will, at any given time, be purchased at a corresponding series of prices.

Supply (that is, *schedule supply*) is a series of quantities of an economic good that will, at any given time, be offered at a corresponding series of prices.

Market price is the price at which, in a given market at a given time, buyers are willing to buy exactly the same quantity of an economic good as sellers are willing to sell.

A *market* is any region in which buyers and sellers are so situated that they can engage freely in the purchase and sale of a given commodity.

Market demand is the quantity of an economic good which will be purchased in a given market at a specified price.

Market supply is the quantity of an economic good which will be offered in a given market at a specified price.

Stock is the total quantity of a given commodity in existence in a given market at a given time.

Law of One Price: Under competitive conditions, there can be but one price for a given commodity in a given market at a given time.

Law of Supply and Demand: Value (or price) varies directly with demand, and inversely with supply. [The reference is to schedule demand and schedule supply.]

INDIVIDUAL PRICES: THE INFLUENCE OF DEMAND

If goods are to enter into exchange, they must, of course, be both useful and scarce. No intelligent person will desire to gain possession of an article unless it gives promise of affording him utility. And, however useful the article may be, he will not give anything for it unless it falls into the category of scarce goods; for unless the article is scarce, in the economic sense, it is a *free good* and may be obtained without any payment.

Utility and scarcity, therefore, are two factors of vital importance in the determination of price. Utility relates to demand, and scarcity to supply. We shall do well to examine carefully the influence of utility upon the demand for economic goods, since it is the combination of utility and money income that determines the quantities of an economic good that will be purchased at various prices. It is this combination, therefore, that leads to the building up of demand schedules and the construction of demand curves. This analysis will be followed, in later chapters, by a treatment of scarcity as it affects the supply side of price determination.

The Law of Demand.—Observations of the desires of the buying public, as expressed in purchases of economic goods, have resulted in a statement known as the Law of Demand. This law states that the quantity of a commodity that will be purchased varies inversely with the price; that is to say, if the price is high the quantity that can be sold will be relatively slight, but as the price comes down progressively larger quantities will be purchased by consumers. If, therefore, a large quantity of a good is to be disposed of, the price will be lower than if the quantity of the good were small.

The Direction of the Demand Curve.—This state of affairs is shown graphically by the general slope of the demand curve,

which is always toward the right and downward, as may be seen by reference to the demand curves in Figures 19 and 21 in the preceding chapter, and to the diagrams used in the present chapter. If the Law of Demand is correct, the demand curve must always move in this general direction, since a movement downward indicates a lowering of price and a movement to the right indicates an increase in the quantity of the good that will be purchased.

The Meaning of "Demand."—The term "demand" is one of the many words which economists use in a special sense. There are some persons who employ this term when what is referred to is simply desire. It will be said, for example, that the demand for houses is great, when the thought to be conveyed is that there is a desire, on the part of a number of persons, for better housing facilities. To the economist, however, there is no such thing as demand apart from a price. Demand to him signifies much more than the desire for economic goods because of the utility they afford. The economic use of the term includes not only this desire, but also the willingness and ability to purchase the commodity at a stipulated price.

It is obvious that the desire of a laborer for a palatial residence, a Rolls-Royce car, and a retinue of servants, all of which he has seen portrayed in motion pictures, does not in any wise affect the demand schedules for these commodities and services, and does not, therefore, constitute demand in the economic sense. Demand means more than desire. There can be no economic demand unless desire is backed up by purchasing power. Demand, as we have already defined it, is a series of quantities of a commodity that will be purchased at a corresponding series of prices.

Causes of the Law of Demand.—There are three important factors contributing to the relationship between quantity and price that is described by the Law of Demand. These factors, which affect both individual and total demand, are:

- (1) The Law of Diminishing Utility.
- (2) Differences in the desires of individuals.
- (3) Differences in the money incomes of individuals.

The Law of Demand is usually thought of in its relation to *total demand*, which is the combined demands of all possible purchasers. However, the law may be best understood if we first analyze *individual demand*, and proceed from this analysis to a consideration of total demand. Using, then, the simple illustration of the demand of six persons for oranges, we shall examine the influence of the three factors noted above as they affect the demands of these persons, both individually and collectively.

Influence of the Law of Diminishing Utility.—The Law of Diminishing Utility states that, after a certain point has been reached in the consumption of a given economic good, the utility of each successive unit of this good diminishes as additional units of the good are consumed. This law is of such wide application that there are few, if any, persons who have not experienced its operation. A single suit of clothes is extremely important in a civilized society, and the utility which it yields is very great. It is not so important to have a second suit, and it is still less necessary to have a third. The utility yielded by the second suit is not so great as that yielded by the first, and the third suit affords even less utility than the second.

If suits of clothing should be added to one's wardrobe until his personal effects included (say) seventy-five suits, as is said to be the case with the Prince of Wales, the utility of each of these suits would obviously be rather slight. That is, any one suit could be dispensed with without the owner suffering greatly through its loss; though to the man having but two suits, or even three, the loss of one would be felt more keenly. The point is that the more units of a good one possesses, the less importance will he attach to each of the units. This is what is meant by the statement that the utility of an economic good diminishes as additional units are consumed; and it is a statement which applies to economic goods of various kinds—to houses, automobiles, articles of food, and so on.

Attention should be called to a condition which is implied, and sometimes expressed, in statements of the Law of Diminishing Utility. The condition is that the law applies only to goods consumed "at a given time," which means before the utility afforded by the first unit has disappeared. For example, a suit of

clothes in 1931 may render quite as much utility as one in 1930, if the suit of the earlier year has been worn out by 1931; though, as we have observed, a second suit in a given year probably affords less utility than the first suit acquired in that year. The utility to be gained from a wholesome meal is no less great today by reason of one's having dined satisfactorily yesterday. But if an elaborate dinner were offered immediately after one had been consumed, its appeal would not be great, simply because the utility of food, for the moment, has definitely declined.

We may note, also, the possibility that in the case of some kinds of goods the second or third unit may conceivably render greater utility than the first. This is said to be true of alcoholic beverages; and for lovers of music, it may apply to operatic or concert numbers. But instances of this kind are exceptional, and are provided for, in our statement of the law, by the inclusion of the clause "after a certain point has been reached."

Table VIII is designed to illustrate the influence of the Law of Diminishing Utility upon the individual demands of six persons for oranges. We have assumed, temporarily, that these per-

TABLE VIII: INDIVIDUAL DEMANDS OF SIX PERSONS FOR ORANGES, AS INFLUENCED BY LAW OF DIMINISHING UTILITY
(Assuming identical desires and money incomes)

Prices of Oranges	Number of oranges that will be bought by					
	A	B	C	D	E	F
60 cents.....	1	1	1	1	1	1
50 ".....	2	2	2	2	2	2
40 ".....	3	3	3	3	3	3
30 ".....	4	4	4	4	4	4
20 ".....	5	5	5	5	5	5
10 ".....	6	6	6	6	6	6

sons (A, B, C, D, E, and F) have identical desires and equal money incomes. The table shows that each of these individuals estimates the utility of a single orange as justifying a payment of 60 cents. A, for example, is willing to exchange 60 cents in money (or the goods which 60 cents would buy) for a single

orange. Though he would regard a second orange as acceptable, he reckons its utility as warranting the expenditure of only 50 cents. And he estimates the utility of a third, fourth, and fifth orange at 40 cents, 30 cents, and 20 cents, respectively.

Here we have the demand schedule of a single individual, A, who, because of the principle of diminishing utility, can be induced to buy more oranges only if the price of oranges is lowered. Since we have assumed identical desires and equal money incomes on the part of these six persons, we are safe in assuming that the Law of Diminishing Utility will affect all six equally, and this fact is recorded in the table.

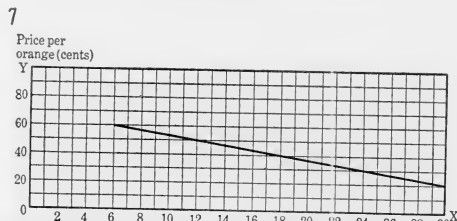


Fig. 24: TOTAL DEMAND OF SIX PERSONS FOR ORANGES: As influenced by Law of Diminishing Utility (assuming identical desires and money incomes). (Compare Table VIII.)

It is now possible to construct, from these six instances of individual demand, a demand curve showing total demand for oranges as influenced by the Law of Diminishing Utility. This curve appears in Figure 24, and indicates that at 60 cents six oranges will be demanded; at 50 cents twelve will be demanded, at 40 cents eighteen will be demanded, and so on.

If a total supply of thirty oranges is offered for sale, the price must come down to 20 cents, or some of the supply will remain unsold. Should the sellers of oranges hold out for 30 cents, each of these six persons will buy only four oranges, and a total of twenty-four, and not thirty, will be sold. What happens is that these potential orange buyers are continually comparing the utility of oranges with the utility of money. So long as an addi-

tional orange promises the likelihood of affording greater utility than will be afforded by retaining the price asked for it, or by spending this amount for something else, just so long and no longer will the purchasers continue to buy oranges. Because of the Law of One Price, which we have already discussed, all oranges must sell at 20 cents each, if any sell at so low a figure.

A Note on the Expression "Utility of Money."—A reference to the utility of money, which appears in the preceding paragraph, deserves a word of explanation, in view of the fact that it has been insisted, in earlier chapters, that money in and of itself does not possess utility, and consequently does not fall into the category of wealth. This statement is accurate, for money *as such* does not yield utility, and is desired only because it may readily be exchanged for things which do possess and yield utility. When, as in the present discussion, we speak of "the utility of money," it must be understood that the expression is used in the interests of economy of words, and that what is referred to is the utility which might be had by purchasing with the money some item of economic goods.

The point to be borne in mind is that buyers are continually comparing the relative utilities of various commodities, but these comparisons are ordinarily made in terms of money, the estimated utility of each commodity being first reduced to the common denominator, money. When we refer to comparing the utility of an orange with the utility of money (say a dollar), what is actually meant by the utility of money is the utility of any other economic good which the dollar might buy, if it were not spent for the orange.

The Influence of Differences in Desires.—The assumption of identical desires on the part of orange buyers is one which is probably not justified by the facts. We know that some persons are very fond of oranges, and will pay high prices for them rather than do without; whereas others care for oranges only moderately, and still others have so slight a desire for this fruit that they cannot be induced to purchase except at an extremely low price.

Since differences in desires actually exist, they should be in-

cluded in the demand schedule together with the Law of Diminishing Utility, so that the influence of both factors will be apparent. Table IX, then, shows that A and C are particularly fond of oranges, while B and E care for them only moderately, and D and F are among those who purchase oranges only when the price is low. All of these persons, it will be noted, estimate the

TABLE IX: INDIVIDUAL DEMANDS OF SIX PERSONS FOR ORANGES, AS INFLUENCED BY LAW OF DIMINISHING UTILITY AND DIFFERENCES IN DESIRES
(Assuming equal money incomes)

Prices of Oranges	Number of oranges that will be bought by					
	A	B	C	D	E	F
60 cents.....	1	0	0	0	0	0
50 ".....	2	0	1	0	0	0
40 ".....	3	0	1	0	0	0
30 ".....	4	1	2	0	0	0
20 ".....	5	1	3	0	1	0
10 ".....	5	2	4	2	3	1
5 ".....	5	3	5	3	3	4

utility of a first orange at different prices, but in each instance the influence of the Law of Diminishing Utility can be seen in the progressively lower figures at which they estimate the utility of additional oranges.

Here, again, we may show the situation graphically, charting the influence of both the Law of Diminishing Utility and differences in desires upon the total demand of these six persons. Figure 25 indicates that only one orange is prized so highly that as much as 60 cents would be paid for it. If as many as ten oranges are to find a market, the price must come down to 20 cents each, at which figure A will buy five oranges; B, one; C, three; and E, one, as is shown in Table IX. If the total supply of twenty-three is to be disposed of, it must be at the price of 5 cents each, since at 10 cents six oranges will remain unsold, because these individual buyers estimate that the utility which these six oranges would yield does not justify the expenditure of 10 cents apiece for them.

The Influence of Differences in Money Incomes.—There is still another factor, the differences in the money incomes of various individuals, which contributes to the Law of Demand. In Table X, this third factor has been added to the other two. It

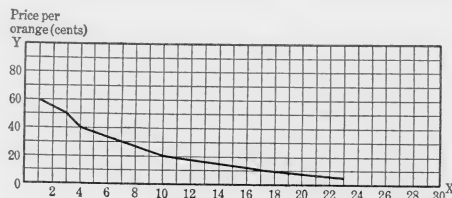


Fig. 25: TOTAL DEMAND OF SIX PERSONS FOR ORANGES: As influenced by Law of Diminishing Utility and differences in desires (assuming equal money incomes). (Compare Table IX.)

is assumed in this table that the utility of money is one-sixth as great for F as for A; one-fifth as great for E as for A; one-fourth as great for D as for A; one-third as great for C as for A; one-half as great for B as for A.

TABLE X: INDIVIDUAL DEMANDS OF SIX PERSONS FOR ORANGES, AS INFLUENCED BY LAW OF DIMINISHING UTILITY, DIFFERENCES IN DESIRES, AND DIFFERENCES IN MONEY INCOMES

Prices of Oranges	Number of oranges that will be bought by					
	A	B	C	D	E	F
60 cents.....	1	1	3	1	2	1
50 ".....	2	1	3	1	3	1
40 ".....	3	1	3	2	3	2
30 ".....	4	2	4	2	3	4
20 ".....	5	2	4	3	3	4
10 ".....	5	3	5	3	3	4

We now see that F, though his desire for oranges is very slight, as is indicated in Table IX, is nevertheless willing to pay 60 cents for a first orange; and this is as high a price as that which A will pay, despite the fact that A is very fond of oranges. The

explanation, of course, is that though the utility of the first orange to F is slight, yet the utility of money to F is also slight, since he has such an abundance of it. It will be noted that E, whose estimate of the utility of the first orange is less than one-half as great as A's estimate, nevertheless will pay more than twice as much as A for a single orange, for the simple reason that, since he has five times as much money income as A, the utility of money to him is not great.

The influence of each of these three factors upon the Law of Demand has been considered separately, and it will now be convenient to present the complete results in tabular form. Table XI shows clearly both individual demand and total demand for oranges at any of 12 different prices. The total demand, of course,

TABLE XI: INDIVIDUAL AND TOTAL DEMAND OF SIX PERSONS FOR ORANGES, AS INFLUENCED BY LAW OF DIMINISHING UTILITY, DIFFERENCES IN DESIRES, AND DIFFERENCES IN MONEY INCOMES

Prices of Oranges	Number of oranges that will be bought by						Total
	A	B	C	D	E	F	
\$1.50.....	—	—	1	—	—	—	1
1.20.....	—	—	1	—	1	—	2
1.00.....	—	—	2	—	1	—	3
.90.....	—	—	2	—	1	—	3
.80.....	—	—	2	—	1	—	3
.70.....	—	—	2	—	2	—	4
.60.....	1	1	3	1	2	1	9
.50.....	2	1	3	1	3	1	11
.40.....	3	1	3	2	3	2	14
.30.....	4	2	4	2	3	4	19
.20.....	5	2	4	3	3	4	21
.10.....	5	3	5	3	3	4	23

is simply the aggregate of the individual demands. It is total demand that we are interested in especially, in the study of price determination. The figures in the right-hand column of Table XI as plotted in Figure 26, illustrate graphically the total demand of these six persons for oranges, and show the influence of the three factors that contribute to the Law of Demand. Even if two of these factors were non-existent, the third (no matter which

of the three it might be) would of itself give us the Law of Demand, and a demand curve which goes downward to the right. But, of course, as has been shown, all three factors have a part in bringing into operation the principle stated in the Law of Demand; namely, that progressively larger quantities of an economic good can be disposed of only if the price is lowered.

Changes in Demand.—Demand, as we have seen, is a series of quantities of an economic good which will be purchased at a corresponding series of prices. When changes in demand occur,

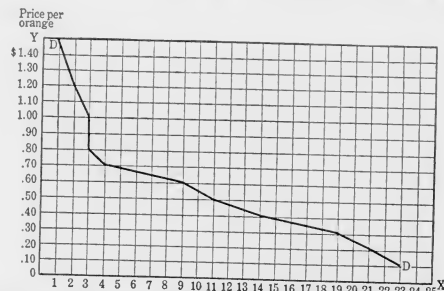


Fig. 26: TOTAL DEMAND OF SIX PERSONS FOR ORANGES: AS INFLUENCED BY LAW OF DIMINISHING UTILITY, DIFFERENCES IN DESIRES, AND DIFFERENCES IN MONEY INCOMES. (Compare Table XI.)

they indicate that there has been a readjustment of quantities and prices. An increase in demand means that a larger quantity of a commodity will be taken at the same price, or the same quantity at a higher price. A decrease in demand, on the other hand, signifies that a smaller quantity of the good will be bought at the same price, or the same quantity as before only at a lower price.

Table XII consists of several demand schedules which show increased and decreased demand for oranges, as compared with the original total demand for oranges scheduled in Table XI. Whereas eleven oranges would have been bought at 50 cents each under the original conditions of demand, only nine will be

TABLE XII: CHANGES IN DEMAND SCHEDULES FOR ORANGES, WITH DECREASED AND INCREASED DEMAND

Prices of Oranges	Decreased Demand (Units sold)	Original Demand (Units sold)	Increased Demand (Units sold)
1.50.....	0	1	2
1.20.....	1	2	3
1.00.....	2	3	4
.90.....	2	3	5
.80.....	2	3	6
.70.....	3	4	6
.60.....	7	9	12
.50.....	9	11	14
.40.....	11	14	16
.30.....	16	19	20
.20.....	18	21	23
.10.....	20	23	25

purchased under conditions of decreased demand, and fourteen will be bought under the supposed conditions of increased de-

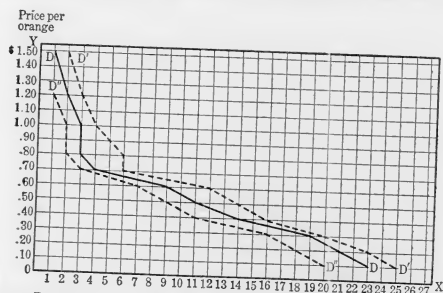


Fig. 27: DEMAND (D), INCREASED DEMAND (D') AND DECREASED DEMAND (D'') FOR ORANGES. (Compare Table XII.)

mand. Figure 27 presents the situation graphically. DD is the original demand curve which we have already met with in Figure 26. D'D' is a new curve showing increased demand, and D''D'' another new curve indicating decreased demand. In the

graphic presentation of demand curves, then, an increase in demand is shown by the curve shifting to the right, and a decrease in demand by a shift of the curve to the left.

Our study of the gradual building up of a total demand schedule has given us some knowledge of the causes of increased or decreased demand, as the case may be. An increase in demand means that the commodity will be bought in greater quantity at the same price, either because the utility which it yields is estimated more highly than formerly, or because an increase in money incomes induces former buyers to purchase in larger quantity or new buyers to enter the market. A decrease in demand, of course, means just the reverse. Either the good in question is esteemed less highly than before, or there has been a decline in money incomes which, though the desire for the good may remain the same, makes it impossible for would-be consumers to purchase.

An increase in the demand for oranges might well result from an extensive campaign setting forth the health-giving qualities of this fruit. Publicity of this kind would doubtless induce some persons to purchase more oranges at the same price. Or an increase in the wages of workmen might bring the use of oranges within the range of many families in which they were formerly unknown because of their relatively high cost. On the other hand, if an enterprising manufacturer of cigarettes should urge upon the public the desirability of reaching for a cigarette instead of an orange, conceivably the effect might be a decline in the demand for oranges and an increase in the demand for cigarettes. A decline in the wages of workers might also bring about a decrease in the demand for oranges; since, with reduced money incomes, certain wage earners would feel compelled to reduce their expenditures for those items of food which they might regard as luxuries.

The Elasticity of Demand.—We must now consider the use of the terms “elastic demand” and “inelastic demand.” In the case of elastic demand the quantity purchased is affected greatly by price changes, but when the demand is inelastic a change in price does not affect materially the amount of the good that will be sold.

The demand for luxuries, as a rule, is relatively elastic, because an increase in price will reduce quite appreciably the number of units purchased, whereas a decline in price will result in definitely increased sales. The demand for automobiles is a case in point. We have witnessed, during the past fifteen years, a steady decline in the prices asked for automobiles and a tremendous increase in sales. So long as the price stayed up this commodity could be sold only to those of fairly large incomes, but as the price went down there came into the market as purchasers many wage earners who previously had been wholly unable to purchase automobiles.

When demand is inelastic the quantity purchased is not materially affected by a change in price. Consequently, an increase in price does not deter many purchasers from buying, nor does a decrease in price induce persons to buy much more than they had formerly used. Most necessities of life come into the classification of commodities for which there is an inelastic demand. The amount of bread consumed by the average family probably varies only slightly with changes in prices. This is true, also, of potatoes and many other relatively cheap food products. Indeed, the less expensive the commodity, ordinarily the more inelastic will be the demand, and *vice versa*. For if the article in question is one which is not low-priced, an increase in its price is likely to turn persons to the use of substitutes. If the price of butter increases greatly, some consumers will substitute oleomargarine, but if the prices of potatoes and bread increase, there are few lower-priced substitutes to which consumers may turn.

Some articles have an inelastic demand for the reason that they play so small a part in one's budget that even a great advance in price is not of tremendous importance. When, during the war, postage stamps rose from two to three cents and newspapers from one to two cents, the mailing of letters and reading of newspapers, if they declined at all, certainly did not change in proportion to the changes in cost to the consumer.

We have said that demand is elastic when the quantity purchased is affected greatly by price changes, and inelastic when changes in price do not affect materially the sale of the good. We are now ready to consider the question of the dividing line be-

tween elastic and inelastic demand. To just what extent must sales be increased or decreased by price changes before we are justified in using the term "elastic demand"? In other words, at precisely what point does inelastic demand end and elastic demand begin? The answer is this: Demand is elastic if the schedule shows that, at successively lower prices per unit, there will be *an increase in the total receipts* for all units sold. If the schedule indicates a reduction in total receipts, the demand is inelastic. If a price change leaves the total receipts unaltered, we have what is called an "elasticity of unity."

TABLE XIII: AN ELASTIC DEMAND SCHEDULE, SHOWING THE NATURE OF THE DEMAND FOR AUTOMOBILES

Price per Car	Quantity that will be Sold	Total Receipts
\$1800.....	100,000 cars	\$180,000,000
1600.....	300,000 "	480,000,000
1400.....	500,000 "	700,000,000
1200.....	700,000 "	840,000,000
1000.....	900,000 "	900,000,000
800.....	1,200,000 "	960,000,000
600.....	1,650,000 "	990,000,000

The point may be made clear by reference to Table XIII, in which we have a demand schedule for automobiles, to which are added the receipts that will be realized from the total sales of automobiles at the several prices, and in the various quantities, given in the schedule. These steadily increasing "total receipts" show that society as a whole will, at a given time, spend more for automobiles at the lower than at the higher prices. The social budget for automobiles is sufficiently elastic to induce *greater total spending* for this commodity as prices are lowered.

Table XIV shows a contrary condition. For, although a reduction in the price of bread (according to this demand schedule) does bring a greater consumption of this good, yet the *total amount spent* by society for bread declines as the price is reduced. This is the sort of situation that is referred to when we use the expression "inelastic demand."

TABLE XIV: AN INELASTIC DEMAND SCHEDULE, SHOWING THE NATURE OF THE DEMAND FOR BREAD

Price per Loaf	Quantity that will be Sold	Total Receipts
16 cents.....	5,000,000 loaves	\$800,000
14 ".....	5,250,000 "	735,000
12 ".....	5,500,000 "	660,000
10 ".....	6,000,000 "	600,000
8 ".....	6,250,000 "	500,000
6 ".....	6,500,000 "	390,000
4 ".....	6,750,000 "	270,000
2 ".....	7,000,000 "	140,000

Demand is elastic, then, if the total amount spent by society for a given commodity increases as the unit price is lowered; it is inelastic when, in the face of price decreases, the total receipts from sales show a decline. It should be noted that a demand schedule may indicate elasticity at one point and inelasticity at another. If, for example, Table XIII showed that, at \$800, 1,100-

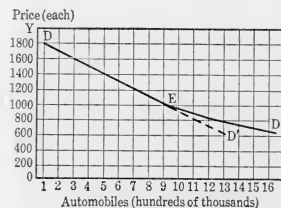


Fig. 28: ELASTIC DEMAND: Shown in the demand for automobiles.

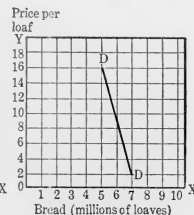


Fig. 29: INELASTIC DEMAND: Shown in the demand for bread.

900 cars would be sold (receipts, \$880,000,000), and at \$600 the sales would be 1,300,000 (receipts, \$780,000,000), we should have inelastic demand in this portion of the schedule, but elastic demand in the portion containing the other prices and quantities.

Elastic and inelastic demand curves follow the general downward slope to the right which is characteristic of all demand curves. However, there is frequently quite a difference in the

appearance of curves showing elastic and inelastic demand. Elastic demand is shown in Figure 28, and we note that the downward trend of the curve is quite gradual when compared with that of inelastic demand, which is indicated in Figure 29. But the appearance of the curve is not the deciding factor, since the appearance of the curve depends upon the scale on which it is drawn. The real test consists of comparing total receipts in the manner that we have described, and noting whether they increase or decrease as prices are lowered. In Figure 28 the curve DD is elastic throughout, whereas the curve DD' is elastic from D to E, but inelastic from E to D'. Hence the curve DD' pictures the change from elastic to inelastic demand, which sometimes occurs and which was explained in the preceding paragraph. We shall have occasion to refer to elastic and inelastic demand in our further discussion of price determination.

Price Determination for Fixed Supply.—We are now in position to consider the determination of price under the simplest possible conditions of supply; that is, under conditions of *fixed supply*. Fixed supply is a quantity of a commodity that must be sold at a given time at whatever price can be obtained for it. The problem here is rendered simple because only one of the two factors, demand and supply, plays an active part in bringing about the necessary equilibrium. The active factor, of course, is demand; supply, being fixed, is not operative. That is to say, the same quantity will be offered for sale, however high or low the price may be.

Indeed, the significance of demand in determining price under conditions of fixed supply is our justification for including this example of price determination in the present chapter, which is a chapter devoted, in the main, to an analysis of the demand side of the price problem. Since price under conditions of fixed supply is so largely a matter of demand, it may conveniently be considered in connection with the demand schedule for oranges, which has been constructed by combining the individual demand schedules of a number of persons.

In Figure 30, we have an illustration of price determination under conditions of fixed supply. This chart includes the total demand curve which was illustrated in Figure 26, but there has

been added a supply curve, SS, which indicates that the supply of oranges (which in this instance is assumed to be a *fixed supply*) consists of nineteen units. The unusual position of the supply curve should be noted. This curve is made by drawing from the proper point in the horizontal line OX (that is, at the point indicating the fixed supply of 19 oranges) a perpendicular to this line. The result is a supply curve which shows that the same number of oranges will be offered for sale at the very lowest price as at the very highest. This is true because, by definition, a fixed supply *must be sold regardless of price*. The intersection of the

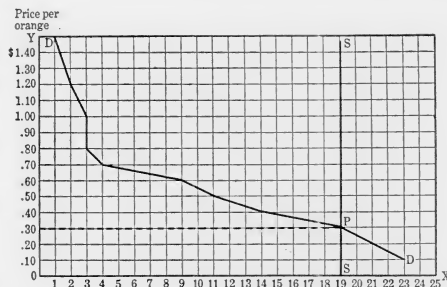


Fig. 30: DETERMINATION OF THE PRICE OF ORANGES: Under conditions of fixed supply.

supply curve with the demand curve indicates the point of price, P, which in the present instance is 30 cents.

With conditions of demand and supply as stated above, we may say with assurance that a supply of nineteen oranges will sell at 30 cents each. At this particular price, and only at this price, will supply and demand be in equilibrium. Thirty cents is the price at which buyers are willing to buy nineteen oranges, as is clearly indicated in the demand curve for oranges. Sellers are anxious to secure the highest possible price, but (since this is a case of fixed supply) they must take whatever price they can get. If the total supply of nineteen oranges is to be sold, the price can

be neither higher nor lower than 30 cents each. The price cannot be higher than 30 cents since the competition of orange sellers will keep it down to that point, and it can not be lower than 30 cents for the reason that orange buyers are competing for the possession of oranges and this competition keeps the price up to 30 cents.

Reverting momentarily to our discussion of "margins" in the preceding chapter, we may note the fact that, in this illustration of fixed supply, the nineteenth orange is the *marginal unit*; that 30 cents is the *marginal demand price* (that is, the price at which buyers are willing to purchase the entire supply of nineteen units); and that this price of 30 cents is the measure of the *marginal utility* of oranges (that is, 30 cents is the figure at which the utility of the least desired unit of the lot, the nineteenth or marginal unit, is estimated).

But fixed supply is not a common economic phenomenon. In the strict sense of the term, it exists only when the total quantity of a good must be sold *at a given time*. If the total quantity *must* be sold, obviously the sellers must take what they can get for it, and the price is fixed by the marginal demand, that is, by the price which will be paid for the least desired unit of the entire quantity. But conditions of strictly fixed supply are difficult to find, since it is rarely necessary to dispose of the total quantity of a good at a given time.

We have conditions approximating fixed supply in the case of such articles as strawberries, fresh fish, and similar commodities which must be sold promptly because of a high degree of perishability. But such instances of "forced sale" are relatively rare. Even strawberries and fish need not always be sold immediately under present-day conditions, since modern refrigeration makes it possible to hold over, for several days at least, articles of a perishable nature, if market conditions seem to dictate a postponement of sale until a more favorable time. However, the knowledge that additional quantities of the commodity will be coming into the market shortly may make the postponement of sale appear unwise, since the goods held over will have to compete with those which will soon arrive, and may bring even a

lower price tomorrow than the unsatisfactory price to be had today.

Fixed Supply and Fixed Stock.—A condition much more usual than fixed supply is that of *fixed stock*. We have defined stock as the total quantity of a commodity in existence at a given time; while supply is a series of quantities which will be offered for sale at a corresponding series of prices. Now fixed stock is a fairly common condition in the economic world, since, in the case of many commodities, the stock cannot quickly be increased. This is particularly true of agricultural products; the world stock of cotton, for example, cannot be enlarged until the coming of the next harvest. This does not mean, however, that there is a *fixed supply* of cotton, and that sellers must take whatever price they can get for the cotton that they have on hand. Some writers on economics, in dealing with fixed stock, treat it as though it were the same as fixed supply. This is not strictly the case, as we have seen, since fixed stock lacks the outstanding characteristic of fixed supply; namely, that it must be disposed of regardless of price. It seems desirable, therefore, to restrict the use of the term "fixed supply" to such quantities of goods as must be sold, however high or low the price may be.

Law of Demand: The quantity of a commodity that will be purchased varies inversely with the price.

Law of Diminishing Utility: After a certain point has been reached in the consumption of a given economic good, the utility of each successive unit of this good diminishes as additional units of the good are consumed.

Elastic demand is a condition of demand in which the quantity purchased is affected greatly by price changes.

Inelastic demand is a condition of demand in which the quantity purchased is not affected greatly by price changes.

Fixed supply is a quantity of a good which must be sold at a given time, at whatever price can be obtained.

Fixed stock is a stock which cannot, within a given period of time, be increased.

CHAPTER XVII

INDIVIDUAL PRICES: THE INFLUENCE OF SUPPLY

Thus far in our study of individual prices, we have had no occasion to look into the costs of production of the economic good under consideration. We have, indeed, simply taken for granted the existence of a quantity of a given commodity, with the thought of ascertaining how, with a certain definite amount of a good available in a given market, the selling price of this good would be determined. The condition assumed is one of fixed stock, incapable of being increased promptly—a stock from which, however, there may be actually placed upon the market such quantities of the good as appear to the sellers likely to bring the greatest total return for the entire stock.

This is a *short-run* situation (sometimes inaccurately referred to as fixed supply, which is, indeed, simply a special type of fixed stock), and one in which the influence of demand is of particular significance; for, in the short run, the supply is affected by the fact that the total stock of the good cannot, for a period of time, be increased. We are now ready to examine price determination in the *long run*. This is a situation in which supply is of great importance; for we are assuming that the "long run" is sufficiently long to permit of an increase in the quantity offered for sale through an enlargement of the producing plants or the entry of new producers into the field, on the one hand, or a decrease in quantity through the withdrawal, either voluntary or enforced, of productive agents, on the other.

AN INQUIRY INTO "COSTS OF PRODUCTION"

Long-Run Supply and Costs of Production.—Supply that can be increased or decreased, because the period dealt with is long enough to allow adjustments to be made in the productive fac-

ors, is called "long-run supply." We shall find that under conditions of long-run supply there is a tendency for price to equal the costs of production.

There is nothing either profound or mysterious about this statement. The plain fact is that, if the price of a commodity continues for any considerable length of time to exceed appreciably the costs of production, the large profit realized by producers of the good (that is, the difference between sales price and total costs) will almost certainly attract the attention of others looking for business opportunities. [We are assuming competitive conditions, of course.] If the profit offers sufficient inducement, new producers will venture into the field, the quantity offered for sale will be increased, and price will decline until the margin of profit is wiped out. Price, therefore, cannot, over a long period, exceed costs of production, under conditions of free competition.

Nor can it continue for long to be less than costs of production. For this is a condition that would result in definite losses; and though some concerns, firmly entrenched and amply financed, can stand considerable temporary losses, others that are less fortunately situated will rather promptly be forced out of business. The result will be a decrease in the quantity produced, and a rise in price that will continue until the sales price is sufficient to cover all costs of production. The costs of production, then, are an amount about which long-run price tends to fluctuate. For any considerable variation between price and production costs is corrected sooner or later by certain forces that set to work almost automatically whenever there is a discrepancy between price and costs.

The Nature of Costs of Production.—Before going further, we must give attention to a question that has probably occurred to the reader, and one by which students of economics are often puzzled. Why, it will be asked, are enterprisers willing to produce goods if they receive for them no more than costs of production? For, according to a statement already made, an amount just covering these costs is as much as business men may expect, in the long run, to realize from the sale of their wares. This amount, nevertheless, is sufficient to keep business men interested in producing goods. For costs of production consist of a

figure large enough to cover all payments that must be made in order to secure the several factors essential to the productive process, *including an adequate payment to management*, the organizing and directing force in business enterprise.

If the total receipts from the sale of a product (that is, quantity times unit price) cover all necessary outlays, including a satisfactory wage for management, there is no reason why production should not be continued indefinitely. Of course, a business concern cannot hope to survive in the long run unless it can pay for the use of land,¹ labor, capital, and management, as much as any other business can and will pay; for a failure to match the offers made by other enterprisers for the use of land, labor, capital and management would inevitably result in the transfer of these factors to businesses presenting to the owners of the factors larger opportunities in the way of remuneration.

The Balancing of Profits and Losses.—Owing to the existence of business risks (which will be examined in a later chapter), it is seldom possible to arrange matters so that receipts are *exactly* equal to costs of production. They will, at times, exceed costs slightly, and again, at other times, they will be somewhat less than costs. Obviously, business success depends upon the profits of "fat years" being, in the long run, at least as great as the losses of "lean years." But it is likewise true that if profits consistently exceed losses, the surplus of profits over losses (as we have already noted) will result in fresh competition and the eventual elimination of the surplus. For (it may be repeated) if total receipts could be made, year by year, to equal the total costs of production, there would be no need at all for profits.

General Items Entering into "Costs."—We have suggested that costs of production consist of payments that must be made

¹ Whether the rent of land is price-determined or price-determining (that is, whether rent is a *result* of the price obtainable for the good in the production of which the land is used, or is, rather, in part a *cause* of this price) is a question regarding which there is considerable dispute among economists. It appears to the present writer that the problem is one that cannot be discussed with profit in an introductory textbook. The view here presented is that rent, like wages and interest, is a payment made by enterprisers for the use of a necessary factor of production; and that it is, therefore, a cost of production, and enters into price. This view is argued ably by H. Gordon Hayes in an article entitled "Land Rent and the Prices of Commodities," *American Economic Review*, June, 1927, pp. 219-29.

In order to secure the use of land, labor, capital, and business management. But some enterprisers, in figuring their costs, show a tendency to overlook some of these items, and as a consequence they have only a vague notion of their total costs of production. When a business man has to pay out to others rent for the use of land, interest for the use of capital, and wages for labor and management, he is pretty certain to include these items in his costs of production. But if, as often happens, he is using some land or capital of his own, or is actively managing the enterprise, there is the possibility that some of these items will be neglected in figuring the cost of doing business.

Such costs as are represented by rent and interest must be included in total costs of production, even though the business man owns outright all of the land and capital that he is using in his enterprise. For, in this event, he as a business man is paying to himself as a landowner a sum that should appear as rent; and he is paying to himself as a capitalist an amount that should enter into costs of production as interest. It matters not, then, whether land and capital are owned by the enterpriser himself or borrowed from others. A true understanding of total costs can be obtained only if, in calculating his costs of production, the business man sets down against the goods produced not only actual cash outlays, but also whatever amount he could secure from others for land and capital owned by himself and used in his business. Moreover, the managerial ability that he expends in his own business must be charged for, since this ability, like the land and capital that he owns and uses in his enterprise, would doubtless command a price from other enterprisers, should these productive factors be thrown upon the market.

If a man can command a payment from others when they use his land, capital, and services, he is surely justified, when using these factors in his own business, in charging against his costs of production an amount as great as he could obtain for these same items elsewhere. Indeed, he cannot know his costs accurately unless he does make a charge for the use of his own productive factors as well as for those that are owned by others. If he is working wholly with rented land and borrowed capital, and makes sure to enter against the business a charge for his

own personal services, there is little likelihood of falling into error. For the enterpriser is fairly certain to set down among his costs of production all *actual cash outlays*; it is only those payments that he makes, or should make, to himself that are likely to be overlooked.

Specific Items of "Costs."—But a business man, in reckoning his costs, usually includes in his expenditures considerably more than four items. Not only rent, interest, wages of labor, and wages of management, but such items as materials, power, light, transportation, advertising, insurance, legal services, taxes, and depreciation and upkeep of plant, are likely to find a place in his calculations. This fact, however, does not invalidate our statement that costs of production are made up of payments for the four factors of production. For each of these specific items (such, for example, as transportation) can be broken up into its elements; and when this is done it will be discovered that each of the items is itself the product of land, labor, capital, and management. In the final analysis, then, these are the factors of production that must be paid for if production is to be carried on; and the sum total of the payments for these factors constitutes the costs of production. By dividing this total by the output (expressed in the number of units produced), it is possible to arrive at the unit cost of production.

Opportunity or Alternative Costs.—We return now to the proposition that the price of a commodity tends to equal, in the long run, the costs that are involved in producing the commodity. These costs, in turn, are composed of the payments that must be made for the use of the several factors (land, labor, capital, and business ability) that are essential to the production of the good. But we are not yet out of the woods, for we have still to discover what it is that determines the amounts that owners of productive factors will be able to obtain from those who must have the use of these factors of production if they are to carry on business. This problem will be discussed at some length in the chapters dealing with the distribution of income. For the present, we shall find it helpful, in our consideration of the costs of production, to look into the theory of "opportunity costs," or, as they are sometimes called "alternative costs."

Opportunity Costs in the Case of Labor.—The theory says, in effect, that the price that is paid for the use of a productive agent (such, for example, as labor of a certain type) will be determined, in a free market, by the competitive bids of enterprisers that need the agent in order to carry on business. Ordinarily, the individual who has skilled labor to sell will dispose of it to that enterpriser who makes him, all things considered, the best offer for his services. We may suggest, then, by way of simple illustration, that in a given market (and this term, it will be recalled, implies a condition of accurate knowledge and free competition on the part of all concerned) a manufacturer of radio receiving sets will find it necessary to pay to (say) a cabinet-maker as large a wage as other manufacturers of this product offer for such labor.

Moreover, the cabinetmaker's skill is sought not only by manufacturers of radio sets, but by producers of phonographs, pianos, high-grade furniture, and other goods. The cabinetmaker, then, is not compelled to sell his labor to a *particular* manufacturer of receiving sets, nor, indeed, to *any* manufacturer of receiving sets. There is presented to him the alternative of working in a piano factory or in some other establishment where labor of his type is needed. He has available, then, a number of opportunities, from among which he may choose that which looks best to him. Experience teaches that, other things being equal, our cabinet-maker will lend his efforts to that line of production that pays him the highest wage. Therefore, *every* business that requires cabinetmakers will be compelled to pay workers of this type as much as is offered by *any* business; and wages for this particular kind of labor will tend to an equality throughout the market.

It will be found, upon investigation, that practically all workers have labor to sell which could be used to advantage in any of several different businesses. Pick-and-shovel men are needed in ditch digging, road making, and in many other activities. Semi-skilled machine tenders are employed in some dozens of industries. Skilled workers, such as stone masons, bricklayers, plasterers, and electricians, are required in many (and not merely a few) types of building construction. Our illustration might be extended to include nearly all kinds of labor. We see, then, that

the demand for a particular type of labor comes, as a rule, not from one concern or from one industry, but from many concerns and oftentimes from several industries. From among these various "opportunities," the worker may choose that which strikes him as being the most advantageous.

General Application of the Principle.—But there are alternative uses for all four of the factors of production, and not for labor alone. The seller of land, capital, or business ability, quite as much as the seller of labor, ordinarily has available more than one opportunity for the profitable employment of his productive agent. On a given piece of agricultural land, either corn or cotton can be produced; and an urban building site may be advantageously located for either a bank building or a theater. Thus, the landowner is able, to some extent, to choose the use to which his property shall be put, and his choice is likely to be dictated by self-interest. In the case of capital, again, we have a factor which, in the long run, can be diverted from one industry to another. For if capital is less well paid in one type of industry than in another, that which is employed in the less profitable business will not be replaced as it wears out, but the "replacement fund" (built up for the purchase of new equipment as the old is impaired) will be used for investment in the more remunerative field. It is scarcely necessary to suggest that business ability of a particular type can usually find employment in any of a number of different industries. For the organizing and directing skill that is essential to the success of one business is almost certain to be in demand in other businesses as well.

Opportunity Costs as an Equalizing Force.—We noted, in the case of the cabinetmaker, that the industry that actually secures his services must pay him at least as high a wage as that offered by any other industry. This statement holds, also, for land, capital, and business ability. The industry that obtains the use of the factors of production does so at a cost sufficiently high to outbid, in the case of each factor, other industries that are anxious to use it but cannot afford to pay the price. The cost of each factor of production, then, is determined by the opportunities for profitable employment that are open to the factor; and the theory of opportunity costs states that this cost cannot be less

than is bid by any form of business which offers alternative employment to the factor.

Since the cost to the business man of any single factor of production is determined by the price which the factor could command in an alternative use, it follows that the total costs of production of a commodity consist of the sum of the opportunity costs of all factors that are employed in its production. In certain parts of the southern states, for example, a given amount of land, labor, capital, and management will produce, over a period of years, an average annual yield of so many pounds of cotton. The costs of production of this cotton are made up of the opportunity costs that must be paid for the use of the productive factors. These same factors could be employed in the alternative business of corn raising, and probably in the growing of still other farm products. Cotton, then, is in active competition with corn, in bidding for these scarce and useful productive agents.

If cotton is to be produced, it will be necessary for the cotton-growing industry to pay for each acre of land as high a rent, to each farm laborer as high a wage, for each unit of capital as high an interest rate, and to each active enterpriser as high a wage of management, as would be paid for these several factors if they were utilized in corn raising or any other economic activity. And, in like manner, if any corn is to be grown, the factors must be paid in this field of production as much as they would command in cotton growing.

An Illustration of Equalization.—We referred, a little while back, to the tendency toward equality of remuneration for all like agents of production, and we find this tendency actually working out in large degree, as is evidenced by the presence, side by side, of cotton fields and corn fields, the cotton crop being produced by factors strikingly like those employed in corn production, and these like factors being paid like prices. A condition of this kind means that, the prices of corn and cotton being what they are, it is immaterial to the farmers which of the two crops is produced, since economically one pays just as well as the other. If an acre of land, plus a given quantity of labor, capital, and management, will produce 150 pounds of cotton or 30 bushels of corn, neither crop has an advantage over the other,

provided the price of cotton is 20 cents a pound and corn is selling at a dollar a bushel. Both crops, then, will be produced; and the costs of production of cotton will be \$30 an acre or 20 cents a pound, whilst the costs of corn will be \$30 an acre or a dollar a bushel. Since price, in the long run, equals costs of production, these latter figures represent the prices at which the two commodities will sell.

Equalization and the Distribution of Productive Agents.—But there is no assurance that the two crops will attract *equal quantities* of each of the productive factors. What we know for

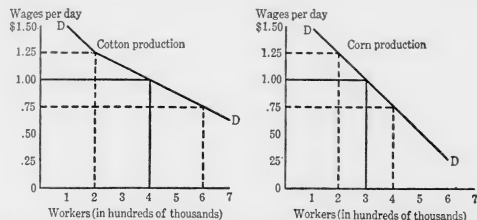


Fig. 31: OPPORTUNITY COSTS: As illustrated by the demand schedules for laborers of a type needed in the production of both cotton and corn. Note the difference in the quantity of this factor which, at a given price, will be used in the production of each of the two crops.

a certainty is that the price paid for a given factor must be the same for both of the competing crops. The quantity of the factor that will be employed depends, in each instance, upon the demand schedules of each industry for the factor in question. We may take, as a single instance, the case of farm labor of a type used in both cotton and corn production. Let us suppose, for the sake of simplicity, that this kind of labor is used only for producing cotton and corn. Figure 31, then, shows graphically the demand schedules for labor in cotton and corn growing, respectively.

The demand curves indicate that, if 700,000 workers are available, the wage will be \$1 a day in both fields of production; but 400,000 workers will be employed for cotton production and only

300,000 for corn. If, under the conditions of demand here pictured, 1,000,000 laborers, instead of 700,000, are seeking employment, they will receive only 75 cents a day for their services; in this instance, 600,000 will be used in cotton growing, and 400,000 in the raising of corn. If, on the other hand, there are only 400,000 laborers of this particular type, the daily wage will be \$1.25, and the total number of workers will be distributed equally between cotton and corn.

It is evident, therefore, that a change in the quantity of one of the factors of production, such as labor, will not disturb the *uniformity of rate* paid by the various industries using the factor. To be sure, an increase in quantity will lower the rate, and a decrease will raise it; but there is no reason to suppose that any business will be able to secure the factor at a lower rate per unit than any other business. In Figure 31 we see that a reduction in the number of workers from 700,000 to 400,000 would cause both cotton and corn producers to pay a higher rate for labor. But there would be no difference in the price as between the business of cotton growing and the business of corn growing. In both instances, the price of \$1.25 a day would prevail.

It is equally apparent, however, that there will be a readjustment in the proportions of the total labor force that each of the two businesses will employ, if the price that must be paid labor is \$1.25 a day. For our figure shows that an increase in wage from \$1.00 to \$1.25 will reduce by one-half the amount of labor used in cotton production, but only by one-third the amount used in raising corn. The demand for cotton, it may be suggested, is more elastic than the demand for corn, and is consequently more susceptible to the influence of price changes. This being the case, it is reasonable to expect an increase in the price of cotton (necessitated by an increase in the cost of the productive agent, labor) to affect sales more quickly and to a greater extent than an increase in the price of corn, brought about by this same increase in the cost of labor.

Scarcity and Costs of Production.—At the beginning of the preceding chapter, we mentioned the significance of utility and scarcity in the determination of price. In that chapter we discussed in detail the way in which utility affects price through

its effect upon demand. The present chapter, and the two chapters that follow, describe the manner in which scarcity, operating through supply, influences price. It should be borne in mind throughout our discussion that a price is paid for a commodity only because there is a scarcity of the commodity, and that the commodity is scarce only because the productive agents used in its making are scarce. On the supply side of price, therefore, we get back finally to the scarcity of the factors of production.

The Prices of Productive Agents.—The principle of opportunity costs explains the distribution of these factors (or agents) throughout the general field of production. First of all, the *total quantity* of a given factor (say, labor) of a given grade will be divided among industries wishing to use that factor, in such manner as to equalize the price that must be paid for the factor by all industries that employ it. When the productive agents are thus distributed and employed, there are brought into existence various quantities of different commodities, which must sell at prices sufficiently high to cover all payments for the factors used in their production. The prices obtainable for these commodities do not *directly* determine the prices that will be paid for the agents used in their production, but the prices that the commodities command do determine, on the basis of opportunity costs, the distribution of these scarce agents among the several industries desiring to employ them. The total demand for an agent is the sum of the demands of all who employ it in alternative uses. Since the agents of production are not desired *on their own account*, but only because of their usefulness in producing other goods, it is customary to say that the price paid for the use of an agent is *derived* from the prices of the finished goods in the production of which it is employed. That is, the price paid *throughout industry as a whole* for a certain kind of productive agent is derived from the prices that can be had for the several commodities which the agent helps to produce. But this price will be high or low depending upon the relationship between the *total supply* of and the *total demand* for the agent.

The Prices of Finished Goods.—The price of an *individual commodity* (such as cotton), looked at from the side of supply, is determined by the costs of production of that particular com-

modity. These costs are the total of the prices (or costs) that must be paid for the use of all factors entering into the production of the good. If the factors used in growing cotton are expensive, less cotton will be grown than would be grown if the factors were cheap, cotton will be relatively scarce, and the price of this particular commodity will be high. It is through their effects upon supply, then, that costs of production influence price. It appears, from our analysis, that the prices of the agents of production and the prices of the commodities that these agents bring into existence are *simultaneously determined* on the basis of opportunity costs. We shall now proceed to examine costs of production under widely different conditions of supply.

NORMAL PRICE IN THE LONG RUN

We are now ready to study normal price under conditions of long-run supply. By "normal price" we mean that price which may be expected to prevail in the long run under certain conditions. Unless otherwise specified, it will be understood that the condition that we assume to exist is free competition on the part of both producers and consumers.

The Meaning of the "Long Run."—The length of the long run depends upon the nature of the commodity and the conditions under which it is produced. However, we may generalize to the extent of saying that the long run is a period sufficiently long to enable production to adjust itself to changes in demand—sufficiently long, as Professor Marshall says, "to enable the normal action of economic causes to work itself out."²

If demand increases, time must be allowed for an expansion of production such that supply and demand will again be on what may be thought of as a normal basis. In some types of industry it might require a decade, or even a generation, to build up a labor force or make other changes necessary to take care of a greatly increased demand. If demand suffers a decline, as has been the case with horse-drawn vehicles, the long-run period must be long enough to allow for a shrinkage in productive capacity, through the wearing out of equipment or its transfer

² Alfred Marshall, *Principles of Economics*, Eighth Edition, p. 371.

to another industry—to mention but one of the productive factors that must be adjusted to the new conditions. Until the necessary changes have been made to take care of increased or decreased demand, we do not have long-run conditions, but a situation which will later be described as the "moderately long run."

The Representative Firm.—Price under conditions of long-run supply tends to equal costs of production; and costs of production consist of the sum total of all prices paid to the productive agents that have played a part in the production of the commodity in question. These long-run costs of production, it may be added, are those of the "representative firm"; and to this firm and its production costs we must now give some attention.

The representative firm is an economic concept devised by Professor Marshall for eliminating differential costs (that is, the different costs of production of various enterprisers) in the discussion of long-run price. His suggestion is that, in considering costs of production in the long run, we take the costs of a concern which "is in a sense an average firm." It is a firm which is neither the most efficient nor the least efficient, but which "has had a fairly long life, and fair success, which is managed with normal ability, and which has normal access to the economies, external and internal, which belong to that aggregate volume of production; account being taken of the class of goods produced, the conditions of marketing them and the economic environment generally."³

The acceptance of this economic concept does not involve a denial that there may be in the field, side by side with representative firms, some concerns that are producing more efficiently than these representative firms and others that are producing less efficiently. But both the superior and inferior concerns will be rather few in number; the former because superior managerial ability is rare, and the latter because poorly managed concerns are continually being weeded out. Since the bulk of a given commodity is being produced by representative firms, all of whom have costs of production which (within fairly narrow limits) are equal, it is obviously these firms and these costs that set the pace

³ *Ibid.*, p. 317.

for the industry. It is these costs, moreover, that are bound to prevail in the long run; for the producers with lower costs cannot supply enough of the commodity to meet the needs of the consuming public, and the producers with higher costs are (because of their losses) promptly driven from the field.

Identity of the Representative Firm.—Changes in conditions from time to time may change the *identity* of the representative firms, without interfering at all with the existence of a *group* of such concerns. A sudden increase in demand would elevate some of the representative firms into the "superior" class, and at the same time pull up temporarily into the representative group some inferior enterprisers whose costs would no longer be higher than the selling price, simply because price had been raised by the increased demand. A slump in demand would have the opposite effect, converting some superior concerns into representative firms, and some representative firms into concerns producing at a loss. One investigator has demonstrated, through an extensive study of costs in the retailing of clothing, "that the identity of the so-called representative firms—those having representative costs—changes from year to year."⁴ He showed, also, that there is a tendency for long-run costs to conform to average costs.

There will always, then, be representative firms, with costs of production that are approximately equal; but the personnel of this group will change from time to time. Just as the corporation survives the loss of one or more stockholders, so the group of representative firms continues to exist despite occasional changes in its membership. We are not interested in the individual concerns that make up the group, but in the group itself; for it is this group of representative firms (to which we shall often refer as "the representative firm") whose costs of production are equal to normal price in the long run.

"The voyage of the best ship," says Emerson in one of his essays, "is a zigzag line of a hundred tacks. This is only microscopic criticism. See the line from a sufficient distance, and it straightens itself to the average tendency." In like manner, price, if examined microscopically (that is, in short-run periods) will

⁴ Horace Secrist, *Expense Levels in Retailing*, p. 44. Chicago: Bureau of Business Research of Northwestern University, 1924.

appear to follow a zigzag course; but if this course is looked at from a sufficient distance (that is, viewed in the long run), it will be found to shape itself into a general trend. It will, in other words, conform very closely to the average costs of production of the representative firm.

Long-Run Price Under Conditions of Constant Costs

Commodities are produced under conditions of (1) constant costs; (2) increasing costs; or (3) decreasing costs. We shall treat, in turn, long-run price under each of these three conditions. It will be found, as we have already said, that normal price in the long run tends to equal the average costs of production of the representative firm; and this is true under all three of the conditions listed above.

Characteristics of Constant-Cost Industries.—The simplest of these conditions is that of constant costs. The term "constant costs" does not refer to a uniformity in costs as between various producers (a uniformity which is one of our conditions, however, since we are employing the concept of the representative firm), but to a uniformity of costs per unit of commodity, regardless of whether the output is large or small.

It should be stated, at the outset, that this condition is one which is difficult to find in actual business practice. And yet there are some few industries in which an increase or decrease in the quantity produced does not change appreciably the costs of production per unit. These are businesses in which raw materials and machinery play a minor part, while labor is of great importance. Hand-made toys, hand-made cigars, and made-to-order clothing are commodities produced under substantially the conditions that have just been outlined. It is entirely possible that a considerable increase or decrease in the production of any of these articles would leave the costs of production per unit practically unaffected. It is improbable, however, that the production of any commodity could be increased or decreased indefinitely without some advantage or disadvantage appearing, which would manifest itself in the form of either lower or higher costs.

An Example of Constant Costs.—Let us take, by way of illustration, the manufacture of neckties that are strictly hand-made. The supply curve, SS ,⁵ in Figure 32, indicates that these ties, regardless of the quantity produced, can be made by our representative firm (or firms) at \$2.00 each. The demand curve, DD , cuts the supply curve at the point P . This means that 50,000 neckties can be sold at \$2.00 each, and that 50,000 can be produced at \$2.00 each. Since they *can* be produced at that cost, they *will* be produced in that quantity in the long run, if conditions of

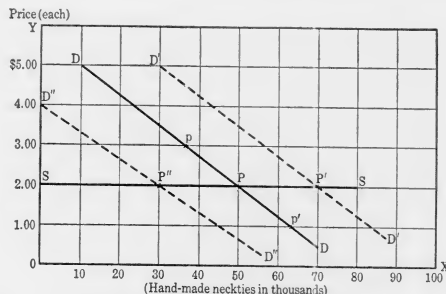


Fig. 32: LONG-RUN PRICE UNDER CONDITIONS OF CONSTANT COSTS: An increase or decrease in demand does not affect the price.

demand favor an output of this size. We are justified, therefore, in saying that the price paid for the 50,000 neckties will be \$2.00 each, which is equal to unit costs of production.

If demand had been greater than we have supposed—as great (say) as is suggested by the demand curve $D'D'$ —manufacturers of neckties would have adjusted their output to meet this larger demand, and we should have had the production and sale of

⁵ Long-run supply curves, though labelled SS , may quite properly be regarded, also, as cost curves. For they represent the various quantities which the representative firm, if given ample time to make necessary adjustments, could produce at various prices. Since the long-run concept provides ample time, we may take it for granted that the representative firm *will* supply these various quantities at their respective prices, if demand changes. Our SS curves, therefore, are true cost curves, as well as supply curves.

70,000 ties, but still at \$2.00 each. For in order to produce the 20,000 additional ties our representative firm would simply have bought 40 per cent more material, rented 40 per cent more space, hired 40 per cent more workers of all kinds (including managers) and added 40 per cent to the very simple “tools” (scissors, needles, and the like) used in manufacturing hand-made ties. The result would have been a 40 per cent increase in total costs, and also a 40 per cent increase in total output, with, of course, the same (or *constant*) costs per unit of product.

$D'D'$ shows that a smaller demand would, again, have left costs of production, and therefore price, unchanged. For, under these conditions of demand, 30,000 neckties would have been bought at \$2 each, and our supply curve shows that this quantity would likewise have been produced at that figure. Production, in the long run, may be relied upon to adjust itself to conditions of demand. If, with DD representing the actual conditions of demand, only 36,000 ties had been manufactured, they would have sold (as our figure shows) at \$3.00 each (see p); and if 64,000 had been produced they would have sold at \$1.00 each (see p'). But a maladjustment between production and demand could not exist in the long run, but would correct itself fairly promptly; for the \$3.00 price (and \$1.00 profit) would attract new enterprisers, whilst the \$1.00 price (and \$1.00 loss) would discourage many producers and force some out of business. In the long run, therefore, price tends to equal costs of production; and under conditions of constant costs price tends always to be the same, whether output is large or small.

CHAPTER XVIII

INDIVIDUAL PRICES: THE INFLUENCE OF SUPPLY (Continued)

NORMAL PRICE IN THE LONG RUN (continued)

WE CONTINUE in this chapter our examination of price determination in the long run. We have seen that long-run price under conditions of constant costs tends to equal costs of production; and we shall find that costs of production play a vital part, also, in the determination of long-run price under conditions of increasing costs and decreasing costs.

Long-Run Price Under Conditions of Increasing Costs

Increasing costs are most apparent in those lines of economic activity which employ large quantities of natural resources or raw materials that are produced in large part through the extensive use of land. As coal mines and oil wells near depletion, the difficulties of securing the desired mineral multiply, and costs of production rise. So long as mines and oil fields are plentiful, this tendency toward increasing costs may be counteracted, in large measure, by moving to new areas that have not yet been exploited. But there is a limit to all good things, not excepting mineral deposits, and eventually the phenomenon of increasing costs makes its appearance.

An Example of Increasing Costs.—We shall take, for our example of increasing costs, the production of wheat, though any other agricultural crop would answer the purpose equally well (as would, also, certain lines of manufacture and public service¹). There is some land in the United States on which

¹ It is maintained, for example, that the telephone business is one of increasing costs, since the complications resulting from the addition of many new subscribers add materially to capital outlay and operating costs. It is readily understandable that the

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50 bushels of wheat per acre can be grown whilst the same amount of capital and labor employed on other wheat land produces but 15 bushels, or even less. But superior wheat land is scarce, and if the demand for this grain is so great as to require the use of inferior lands the costs of production are bound to rise.

Figure 33 shows that the representative firm could produce wheat at average unit costs varying from 50 cents to \$1.50 per bushel, the price depending on the quantity produced. If only 100,000,000 bushels were required, wheat would be produced at an average cost of 50 cents. But this quantity, according to the demand curve, DD, would command a price of \$2.00. Since we are considering price in the long run (a period sufficiently long to permit production to adjust itself to conditions of demand) it

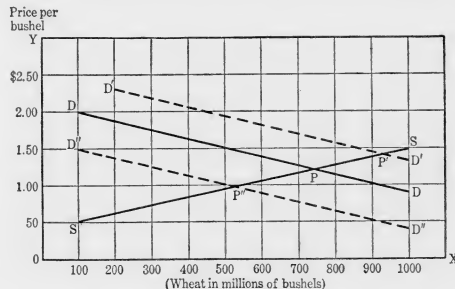


Fig. 33: LONG-RUN PRICE UNDER CONDITIONS OF INCREASING COSTS: An increase in demand raises the price; a decrease in demand lowers the price.

is unthinkable that there should be a discrepancy between price and average costs of production. For in this "long run," producers would have moved out to less and still less fertile wheat lands and produced there at higher costs, just so long as these costs were no greater than the price obtainable for their product.

equipment needed for "connecting" 100,000 subscribers by telephone (so that each may talk, if he wishes, with any of the other 99,999) must be much more elaborate than that necessary for serving 10,000 subscribers. Moreover, it requires more than ten times as many operators to take care of 100,000 subscribers as are needed for 10,000.

The diagram shows that (adjusting their productive forces to conditions of demand) they stopped at the point P, at which point 750,000,000 bushels were produced at an average cost of \$1.20, and likewise were sold at \$1.20. If demand (due, let us suppose, to density of population) had been so great as to be represented by the demand curve $D'D'$, the average costs of production would have been \$1.40 (see P'), and 920,000,000 bushels would have been produced at an average cost of \$1.40, and sold at this figure. If, on the other hand, the conditions of demand had been those indicated by the curve $D''D''$, 540,000,000 bushels would have been produced at an average cost of \$1.00 per bushel, and would also have sold at \$1.00.

A Note on "Average Costs."—The costs of production with which we are here dealing are not marginal costs but average costs per unit, which are found by dividing total costs of production by the number of units produced. According to Figure 33, the total costs of producing 100,000,000 bushels of wheat are \$50,000,000, making the average costs 50 cents per bushel; the total costs of 750,000,000 bushels are \$900,000,000, with an average of \$1.20 per bushel; and so on. The costs referred to are those of the representative firm. This firm is representative of the industry as a whole; and it is important to note that we assume, in discussing long-run price, that every substantial change in the quantity of production has been brought about through a reorganization of the industry—that is, through a readjustment of the productive forces of the representative firm to the changed conditions of demand.

If 750,000,000 bushels of wheat are to be produced instead of 100,000,000 bushels, the readjustment that is necessitated in getting out the larger quantity increases the total costs of production to a greater extent than the quantity itself is increased, and the average unit costs rise. Without attempting to give an adequate explanation of this increasing cost, we may suggest that the larger output involves the cultivation of inferior land, or the more intensive use of the better grades of land, with the result that diminishing returns manifest themselves impressively in the

form of both higher total costs and average costs per bushel of product.

Land and Increasing Costs.—Increasing costs, then, are chargeable to a scarcity of productive agents of high grade, and this scarcity becomes increasingly serious as the consuming public demands more and more units of a finished commodity which requires in its production the use of agents that cannot themselves be increased in quantity. It is on this account that commodities, in the production of which land is an important factor, are usually subject to increasing costs; for land of the highest quality is extremely limited in quantity, and as poorer pieces of land are called into use (because of increased demand for the finished goods) efficiency in production declines and costs of production rise. This is a matter upon which we shall touch again in our discussion of rent from land.

Long-Run Price Under Conditions of Decreasing Costs

We consider now a condition of supply which is in direct contrast to that of increasing costs. There are many lines of production, happily, in which an increase in output brings about a lower, rather than a higher, cost per unit of product. In our discussion of constant costs, we saw that price may be relied upon to remain unchanged (because unit costs of production are unchanged) whenever an increase or decrease in output does not disturb the *relative proportions* of the productive agents. Once the best possible combination of the productive factors has been attained, any attempt to increase output by employing more of certain factors without employing more of all, would inevitably lessen the efficiency of production,² and consequently increase the costs of production. A reduction in output would have a similar effect if it upset the "ideal proportions" of the productive agents.

The growing of wheat, as is shown in our last example (see Figure 33), was more costly per average unit when a large quantity was produced, because the additional units of capital and labor employed in growing the larger quantity were not accom-

² See the Law of Variable Proportions in Chapter V.

panied by an equal number of units of high-grade wheat land, but were used in conjunction with units of inferior wheat land. This example illustrates the truth of the first part of Professor Marshall's statement to the effect that while the part which nature plays in production shows a tendency to diminishing returns, which result in increasing costs, the part which man plays shows a tendency to increasing returns, which bring decreasing costs.⁸ If, in extending the cultivation of wheat to wider areas, it were feasible to adopt better agricultural methods which, though previously known, were impracticable until more product was demanded, then the diminishing returns due to the use of inferior land might be counteracted by the increasing returns resulting from the economies realized through a better use of labor and capital. It is in those enterprises in which men and machines are employed extensively—as, for example, in manufacturing industries—that (as Professor Marshall suggests) we find the most impressive instances of decreasing costs.

Internal and External Economies.—The economies through which increasing returns (and, as a consequence, decreasing costs of production) manifest themselves are both "internal" and "external." Internal economies are those which take place within individual business establishments as the result of efficient organization and management. We noted, in our study of large-scale production, that the average unit costs of production are often lowered by an increase in the total amount of output, because such an increase leads to a greater development of specialization, the use of more or better machinery, more efficient marketing, and other improvements. An increase in the demand for a commodity will sometimes enable the smaller, less efficient firms to adopt the better methods that are already being used in the larger, more efficient establishments, and thus bring a reduction in the costs of the smaller concerns.

Some economies are wider in their application and relate to an industry as a whole rather than to separate enterprisers. As an industry develops in response to an increase in the demand for its product, there are likely to spring up about it other industries that contribute to its effectiveness and help to lower its costs.

⁸ Alfred Marshall, *Principles of Economics*, Eighth Edition, p. 318.

The automobile industry is, of course, the outstanding example. Side by side with the tremendous growth in automobile manufacture, we have had a development of establishments that specialize in the making of automobile bodies, mechanical parts, tires, upholstery, glass, and other goods that are essential to the automobile industry itself. The specialized manufacture of these automobile necessities has, with the steadily increasing demand for motor transportation, reduced the costs of production of cars, and consequently the selling price. These are but a few of the external economies that have been made possible through increased production, and are enjoyed by scores of automobile manufacturers. We shall not attempt to make a complete list of such economies, but may add that the "localization" (or grouping together) of the various elements of an industry often brings improved railway facilities, an abundant supply of labor, legislation favorable to the industry, and other advantages that are reflected in decreased costs of production.

An Example of Decreasing Costs.—We may well draw upon the business of automobile manufacture for our example of price determination under conditions of decreasing costs. This industry, which provides so many striking illustrations of modern economic tendencies, has shown itself to be, without question, one in which increasing returns (or decreasing costs) are realized. The phenomenal growth in the sale of automobiles during the past two decades has given to automobile manufacturers an unparalleled opportunity to employ minute specialization and extensive mechanization, and to witness their influence upon costs of production. The ability to dispose of a progressively larger output has enabled manufacturers to take advantage of many economies, both internal and external, and thus reduce average costs and selling price.

In Figure 34, we have a supply curve representing the average costs at which various quantities of automobiles can be produced by the representative firm. These costs range from \$600 each in the case of an output of 100,000 cars, to \$280 each when production reaches 1,000,000.

This condition, then, is one of decreasing costs, with each increase in production bringing fresh economies, lower average

costs, and therefore a lower selling price. Under the conditions set forth in our diagram, 700,000 cars would be produced at an average cost of \$400 each (see P), and, because of competition, would sell at that price. Had there been a smaller demand, such as that indicated by the curve $D''D''$, only 580,000 automobiles would have been manufactured, and the average costs and selling price would have been \$440 each (see P''). If, on the other hand, the conditions of demand had been those shown in $D'D'$, production would have been 800,000 cars with average costs and

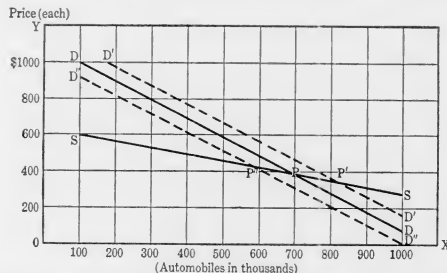


Fig. 34: LONG-RUN PRICE UNDER CONDITIONS OF DECREASING COSTS: An increase in demand lowers the price; a decrease in demand raises the price.

selling price (see P') at \$360. Obviously, this sort of thing cannot go on indefinitely; in every industry there is a point beyond which a further increase in the quantity produced will not result in a reduction in unit costs of production.

Long-Run Price Under Conditions of Joint Costs

We now consider the case of commodities that have a common origin, and are produced not independently but jointly. Cotton fiber and cotton seed are "joint products," in the sense that one cannot be produced without the other; and this is true, also, of wheat and straw, meat and hides, butter and buttermilk, and many other articles.

If one of the products is so plentiful as not to command a price (as was once the case with cottonseed in the South and straw in the "Wheat Belt"), there is no problem of joint costs. When cottonseed is so lightly regarded as to be thrown away, and straw is burned in order to get rid of it, they certainly play no part in costs or in price determination. But when cottonseed, for example, is sufficiently desired and sufficiently scarce so that it (as well as the fiber) commands a price, the question arises as to how the price of each is determined. This question suggests, as questions of long-time price always do on the side of supply, an examination of costs of production. And here we come face to face with joint costs, because we are dealing with two commodities that are produced jointly. An enterpriser cannot produce cotton fiber without at the same time producing cottonseed, nor can he produce cottonseed without producing cotton fiber.

An Example of Joint Costs.—How, then, is it possible to separate the costs of production of the two articles? Every item of cost, down to the final process of ginning, is necessary whether only cotton fiber, or both fiber and seed, can find purchasers. Since all of the costs incurred contribute to the production of both commodities, and since no part of the cost is specifically chargeable to either, it is quite impossible to separate these joint costs and allocate to each its share, except on a purely arbitrary basis. The best that we can do, therefore, is to treat them frankly as inseparable, and speak of the costs of production of various quantities of the *joint product* as "joint costs." The unit to be considered is not a pound of fiber or a pound of seed, but a combination of the two. When cotton fiber is separated from the seed in the process of ginning, it is found that three pounds of the joint stuff yield up approximately one pound of fiber and two pounds of seed. We shall accept these figures as substantially correct, and (in our explanation of joint costs) shall think of a *unit of joint product* as consisting of one pound of cotton fiber and two pounds of cottonseed.

Total Costs of the Joint Product.—Turning now to Figure 35, which is a graphic presentation of price determination under conditions of joint costs, we note that SS is an ascending supply curve, which indicates that the production under consideration

is one of increasing costs. A joint product, like a commodity that is produced independently, will in the long run sell at a price equal to average costs of production. The supply curve in Figure 35 shows the average costs at which different quantities of the joint product can and will be produced, in the long run, assuming favorable conditions of demand. But when we see that, for example, 14 cents per unit will be the cost if 100,000,000 units are produced, we must remember that this quantity means 100,000,000 pounds of fiber plus 200,000,000 pounds of seed. Similarly,

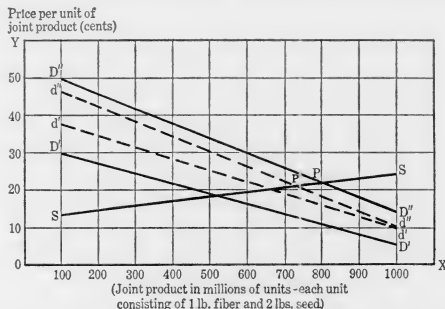


Fig. 35: LONG-RUN PRICE UNDER CONDITIONS OF JOINT COSTS: The price of each unit of joint product equals the average costs of production of the total quantity produced. The prices of the individual commodities jointly produced are determined by conditions of demand.

25 cents will be the cost *per unit of the joint product*, that is, for one pound of fiber and two pounds of seed, if 1,000,000,000 units of the joint product (1,000,000,000 pounds of fiber and 2,000,000,000 pounds of seed) are produced.

Thus far, the problem is an exceedingly simple one. Having no way to separate the costs of producing fiber and seed, we do not attempt to deal with their costs separately, but are content to say that the price received for both articles must cover the total costs of production of both. If, as is indicated in Figure 35, 800,000,000 units of the joint product are produced, then each unit

(consisting of one pound of fiber and two pounds of seed) will cost 22 cents, and will sell for 22 cents. So far, so good. We are now through with costs of production as they relate to this particular problem, but we have yet to deal with the individual prices at which each of the commodities that are jointly produced will sell. We know that one pound of fiber plus two pounds of seed will cost and will sell for 22 cents; but on what basis will this total of 22 cents be divided between the two commodities?

The Division of Total Costs into Prices.—The answer to this question will be found through an examination of our demand curves. The total demand curve, $D''D''$, is constructed in a peculiar way. First of all, the curve $D'D'$ was drawn to represent the demand for cotton fiber. This curve shows, for example, that 100,000,000 pounds of fiber could be sold at 30 cents a pound. But the production of this quantity of fiber involves the production, also, of 200,000,000 pounds of cottonseed. Hence, we have drawn the total demand curve, $D''D''$, to include the demand for cottonseed (in units of two pounds each). The distance from the curve $D'D'$ to the base line, OX , gives us the price at which any given quantity of fiber will sell; the distance between the curves $D'D'$ and $D''D''$ indicates the price at which any given quantity of seed (expressed in two-pound units) will sell. $D''D''$, therefore, shows the demand for *both* fiber and seed. We see, then, that 100,000,000 pounds of fiber will sell at 30 cents (the distance between $D'D'$ and OX), and 100,000,000 units (of two pounds each) of seed will sell at 20 cents (the distance between $D'D'$ and $D''D''$). This means, of course, that the sale of 100,000,000 units of the joint product will take place at 50 cents per unit. Of this 50 cents, 30 cents will be paid for one pound of fiber, and 20 cents for a two-pound unit of seed (or 10 cents a pound for the seed).

Let us consider, now, the total demand curve, $D''D''$, in relation to the supply curve, SS . These curves intersect at the point P , showing that 800,000,000 units of the joint product will sell at 22 cents per unit. The $D'D'$ curve tells us that the fiber portion of each unit of the joint product will command 12 cents, leaving 10 cents for the two-pound seed portion of the unit. Hence the

fiber will sell at 12 cents, and the seed at 5 cents a pound. If there were a smaller demand for seed, as is shown in $d''d'$, 720,000,000 pounds of fiber would sell at 13 cents a pound, and 1,400,000,000 pounds of seed at 4 cents, a total of 21 cents *per unit of joint product*.

Effects of Unequal Changes in Demand for Commodities Jointly Produced.—This analysis of joint costs brings us to the conclusion that the total price received for the joint product will, in the long run, equal the average costs of production of the joint product. The separate costs of the several products jointly produced cannot be determined, but the price of each separate commodity can be ascertained on the basis of demand. A change in the demand for one of two articles produced jointly, without a corresponding change in demand for the other, affects the prices of both but in opposite directions.

We have already discussed the effects of a decrease in the demand for cottonseed. This decreased demand would have caused the price of seed to drop from 5 to 4 cents, with the price of fiber rising from 12 to 13 cents a pound. The rise in the price of fiber is readily explained. The decrease in demand for seed would make it impossible to dispose of 800,000,000 units of the joint product, as previously, at the average cost of 22 cents per unit. Hence the industry would have to be reorganized (in the long-run period of which we are speaking) to meet the conditions of changed demand. The amount of joint product that could be disposed of, with $d''d'$ as the total demand schedule, was 720,000,000 units. But the demand curve, $D'D'$, shows that this quantity of fiber will sell at 13 cents a pound. Since the average cost of the joint product is 21 cents when 720,000,000 are produced, there are 8 cents available for the two pounds of seed.

If the demand for fiber should be such as is indicated by the curve $d'd'$ (while total demand is represented by $D'D''$), cotton fiber would sell at 16 cents a pound, and seed at 3 cents, as may be seen by reference to Figure 35. These several illustrations show the tendency, under long-run conditions of joint costs, for the price of each of the commodities jointly produced to be determined chiefly by conditions of demand, while the combined price

of the commodities tends to equal the average costs per unit of joint product that must be met in producing them.

Costs of Special Processing.—We assumed, in our illustration of cotton fiber and seed that no part of the joint costs was specifically chargeable to either of the two commodities, in the sense of being unnecessary in the event that one of the two should not be salable. But it is safe to say that this exact situation seldom exists. Though we have gone ahead, in our discussion, on the basis that fiber and seed are completely "produced" when they have been separated by ginning, we may now suggest that ordinarily the two products are not sold as they come from the gin; but the fiber is baled and shipped, and the seed converted into oil and cottonseed meal. The costs of baling and shipping the fiber may be determined without difficulty, since these costs apply not to both of the joint products but to one only; and the cost of manufacturing cottonseed oil and cottonseed meal may likewise be ascertained.

Costs such as these are directly chargeable to the commodity in the "processing" of which they are incurred. And a commodity that is jointly produced in the main, but requires further processing before its production is completed, will not be bothered with unless it can be sold at a price which is at least sufficient to cover the costs of special processing. If, for example, the cost of turning cottonseed into oil and meal is one cent per pound of seed, then the oil and meal that are made from a pound of seed must bring a price of at least one cent. To a slight degree, then, it is often possible to assess certain costs against specific commodities that in the main are jointly produced.

Variable and Fixed Costs.—The difficulties experienced by business men in allocating costs are not confined to conditions of joint supply, but are met with in production of all kinds. The fact is that some types of costs may be readily determined and charged against specific units of goods, while other costs, applying as they do to the business as a whole and not to particular units of product, can be distributed only on a more or less arbitrary basis among the units produced.

Costs of the first type are called "variable costs," and those of

the second type "fixed costs."⁴ Fixed costs are commonly referred to by the business man as "overhead costs," or simply "overhead." If we consider the manufacture of a commodity such as shoes, we find that certain costs are variable, in that they vary directly with the volume of product. The leather and other materials, the common labor, and the power used, increase or decrease in quantity as production increases or decreases, and the change is usually proportional to the change in the quantity of the product. But production may, and frequently does, change to a considerable extent without affecting the size of the physical plant, the number of highly paid executives, and certain other items. Consequently, outlays of this type are given the name "fixed costs." Fixed costs per unit of product may, at any given time, be determined by dividing the total of such costs by the total units produced. Adding this amount to the variable costs per unit, it is possible to get total costs of production per unit.

Production at Less than Full Costs.—Total costs of production, of course, include both variable and fixed costs. And price, in the long run, must be high enough to cover both kinds of costs (that is, *total average costs of production*), since otherwise a business will languish and eventually disappear. For a shorter period, however, it may pay to produce goods even though the price received for them is less than full costs. A shoe factory, let us suppose, manufactures 1,000 pairs of shoes at a total cost of \$10.00 a pair, of which amount \$8.00 is variable and \$2.00 fixed costs. Now if conditions of demand are such that only \$9.50 per pair can be obtained, it will still pay to continue production, at least temporarily. For the fixed costs of \$2,000 a day must be met whether there is any production or not; and, though production at \$9.50 means a loss of \$500 daily, no production at all means a loss of \$2,000 daily.

If, on the other hand, production could be increased 10 per cent without any increase in the fixed costs, it would pay to manufacture the extra 100 pairs of shoes and sell them for less than full costs of production (say, at \$9.00), provided they could be

⁴ Many other names have been used to designate these two types of costs, as, for example, "prime" and "supplementary," "direct" and "indirect," "operating" and "overhead," and so on.

disposed of in another market and not disturb the \$10.00 price for the regular output of 1,000 pairs. For the additional 100 pairs would bring in \$900 a day, with the outlay of \$800 in variable costs but no addition to fixed costs, or overhead. It is situations such as this that encourage business concerns to "dump" goods abroad, selling in the foreign market at lower prices than in the home market.

In concluding this brief sketch of a most complicated subject, we may generalize to the extent of saying that fixed costs usually relate to payments for fixed capital, salaries of employees whose uninterrupted services are essential to the maintenance of the organization, and similar items. Variable costs, on the other hand, apply to circulating capital, labor which may readily be hired and fired as the occasion demands, and so on.

NORMAL PRICE IN THE MODERATELY LONG RUN

It should be apparent, by this time, that price is always the result of an equilibrium between supply and demand, but that the influence of demand is of particular significance in the determination of short-run price, whereas supply plays a dominant rôle in the case of long-run price. Writers on the subject of value (or price) frequently stress the importance of utility or costs of production. We have ourselves used these terms repeatedly, but we have sought always to make clear the fact that utility affects price only through its influence upon demand, and that costs of production affect price only by influencing supply.

In the short run, as we have seen, the costs of production have no part in price determination, since the short run is a period during which the stock of a good cannot be increased (nor, indeed, be decreased except through sales). But in the long run, since there is ample time for the expansion or contraction of output, the costs of production play an important part in price determination, through their effect upon supply. Indeed, we have just completed an analysis that demonstrates that in the long run price tends to equal the costs of production of the representative firm.

Dynamic Nature of the Moderately Long Run.—We now direct our attention to a period of time which is neither very short nor yet very long,—a period in which the conditions of supply are different from both short-run and long-run conditions. For want of a better name, we shall speak of this intermediate period as the “moderately long run.” We use this term to designate a period of time that is long enough to allow some changes to be made in production (in order that production may to some extent adapt itself to changes in demand), but not sufficiently long to permit a complete readjustment of all economic agents. It is, indeed, the *period of adjustment* itself, in which modifications are continually being made, that we shall now examine. We shall not, in this period, find production completed (as in the short-run period) nor yet perfectly adjusted to demand (as in the long run); but we shall see that productive forces are, in the moderately long run, in something approaching a state of flux, expanding and contracting in the effort to meet the conditions of demand.

Under conditions of short-run supply, there is no necessary relationship between price and costs of production. Goods having once been produced, they will be sold on the market at the highest price that the holders can secure; and this price, of course, will either equal costs of production, or be greater or less than costs of production. If, in a particular instance, the price received is exactly equal to costs of production, producers will be encouraged to continue their operations as in the past, but there will be no particular reason for increasing their output. If price is less than costs, the situation will be discouraging, and some producers may be forced out of business. If, however, price is higher than costs, the profit which results will, in all probability, stimulate production.

Let us consider these three possibilities as they work out in the case of an agricultural product, such as cotton. This commodity, like practically all economic goods, is produced in anticipation of demand. It is produced, moreover, by thousands of individual farmers, most of whom have but a slight idea (if, indeed, any idea) of the quantity of cotton that is being raised throughout the world, and the probable conditions of demand that will prevail

when the crop is harvested. In the absence of accurate knowledge of such matters, it would be little short of marvelous if the market price for cotton were precisely equal to the costs of production.⁵ If, however, the market price should happen to match exactly the costs of production, both amounting to (say) 20 cents a pound, the effect upon future production would be that which we have already suggested; namely, the quantity of cotton produced in the following year would probably approximate very closely the amount raised in the year that we have been discussing.

Effects of Imperfect Adjustment.—But if the market price, because of the large stock available or a decrease in demand, should be only 18 cents, or two cents less than costs of production, this loss would almost inevitably bring about a reduction in the acreage allotted to cotton-growing in the following year. If, on the other hand, because of a small stock or an increased demand, the market price should be 22 cents a pound, this two-cent margin of profit would result in larger plantings in the future; for those who had benefited by this surplus would be likely to increase the acreage given over to cotton, and others would be attracted into this field of production. Producers, then, are continually making adjustments in output, in the hope that the conditions of supply and demand will bring them a price at least as great as the costs of production.

Up to this point, we have been proceeding as though the costs of production were the same for all producers. But the truth is that, at any given time, there are differences between the costs of various producers. In Figure 36 these differences in costs are indicated by the height of the blocks (A, B, C, D, E, and F) which shows that the total quantity (1,000,000 bales) of cotton is produced at average costs which range from 16 cents to 22 cents a pound. Let us suppose that conditions of demand are such that the entire stock can be disposed of at 20 cents, which is a market price high enough to cover all costs except those of Producer F, whose costs are 22 cents. Producer E, for whom the price of 20 cents is just enough to cover costs of production, is known as the “marginal producer,” since the price received for

⁵ We are not, just yet, taking account of differences in the costs of different producers. This point will be dealt with shortly.

his product is sufficient to induce him to keep on producing, though a lower price would force him out of business, just as the price of 20 cents forces out Producer F whose costs are 22 cents and who is called an "extra-marginal producer."

Effects of Profits and Losses on Future Production.—If the situation depicted in Figure 36 puts Producer F out of the running, but leaves the other producers unchanged in output and costs in the following year, and if the demand for cotton remains

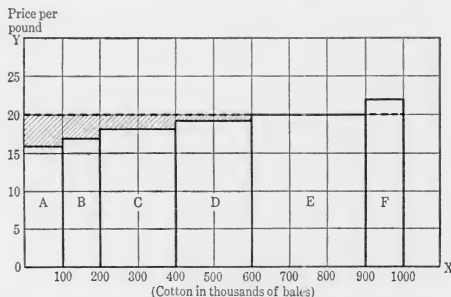


FIG. 36: DIFFERENTIAL COSTS IN THE PRODUCTION OF COTTON: The average costs of the several producers range from 16 cents to 22 cents per pound. If conditions of demand are such that the total stock (1,000,000 bales) will sell at 20 cents a pound, Producer F loses two cents a pound; Producer E's costs are exactly equal to the price received, so that he is the marginal producer; and the other producers, being more efficient than E, reap the profits indicated by the shaded portion of the diagram.

the same, we shall have in the second year a crop of 900,000 bales, which will sell (let us suppose) at 21 cents a pound. The diagram shows that this quantity will be produced at a maximum cost of 20 cents a pound. Here we have a most favorable situation, from the producers' point of view; for even Producer E, the least efficient of those now engaged in cotton-growing, will reap a profit of one cent a pound over and above his average costs of production, and the profits of A, B, C, and D, will be increased by a cent a pound, also. In the previous year, it was the 100,000 bales produced by F (and produced at a loss, it will be remembered) that

forced the market price down to 20 cents, which happened to be the exact average production costs of E. With F out of the way, and smaller total stock to be disposed of, the market price of the second year under consideration will be established at a figure that is very gratifying to all producers left in the field.

Persistence of Inefficient Producers.—It may be fairly questioned whether this supposed second-year condition is one that conforms closely to business experience. While it is conceivable that all producers in a given year may be so efficient that the average costs of all will be lower than market price, yet the long annual list of failures throughout industry suggests that new groups of inefficient producers are ever ready to take the places of those who have failed. It is likely, then, that when F involuntarily retires from business a fresh recruit will replace him; and (assuming that demand remains the same) this new enterpriser, if no more efficient than F, will also be an extra-marginal producer, while E continues in the second year (as in the first) as the marginal producer. It seems probable, then, that an industry will usually have a marginal producer, that is, a producer whose individual average costs are just covered by the market price.

Effect of Profits on Future Production.—But if Producer F is eliminated by the first year's experience and his place remains unfilled, so that the excellent profits that we have imagined are actually realized in the second year, we may feel pretty certain that the lure of such profits will attract an abundance of new enterprisers by the third year. The result is not hard to imagine. There will be an unusually large crop of cotton in the third year; and, if demand remains unchanged, the market price will be low, and all producers with average costs greater than those of the marginal producer will suffer losses. These losses, again, will affect production in the fourth year, possibly so reducing output that profits will again be made by all producers of cotton. Thus we find the profits or losses of one year influencing production (and possibly bringing losses or profits to some) in the following year.

Changes in Demand.—We have said nothing, thus far, of changes that may take place in demand. It need only be suggested that there is no assurance that demand, year after year, will re-

main fixed. It may easily be affected by changes in population, changes in desires, or changes in individual money incomes. Demand may either increase or decrease; and this fact adds greatly to the uncertainty of the situation and to the risks that producers continually face. Enterprisers never know exactly what conditions of demand will prevail in the coming year (or month) in which the goods now in course of production must be sold. They never know exactly how much of the commodity will be supplied by other enterprisers. And yet they are continually making estimates as to both demand and supply at some future time, and are producing on the basis of these estimates. In this process of "guessing the future" and adapting productive forces to anticipated conditions, it is small wonder that price is seldom exactly equal to the costs of the least efficient producer.

An Example of Dynamic Conditions in Manufacturing.—It is especially difficult to make adjustments quickly in businesses that involve the use of large quantities of capital. We may consider, by way of illustration, a rapid increase in the demand for silk cloth (an increase such as has taken place in the past decade or so) attributable to one of these sudden changes in fashion by which our textile industries are so often seriously disturbed. Silk manufacturers, in order to meet the increased demand and gain large profits, will endeavor to speed up production. In the long run, of course, if the popularity of silk clothing continues, it will be possible to reorganize the industry and increase production very greatly, by the building of new mills, the purchase of new machinery, the development of an additional labor force, and like changes.

But for a time, which we have chosen to call the moderately long run, manufacturers will experience considerable difficulty in enlarging their output. For it takes years, rather than months, to build enough mills, manufacture enough looms, and train enough workers to increase greatly the production of silk cloth. If output is to be expanded at once, it will probably be necessary to bring into use out-of-date and partially obsolete looms, to recall for service ancient and inefficient workers who have been released in normal times, and perhaps to operate night shifts in order to keep equipment working at capacity. In any event, this sudden

sput in production will result in a higher average cost per unit of product, for antiquated machinery, second-rate employees, and night work are not calculated to bring low costs of production.

However, the high prices that are obtainable for the cloth may be more than sufficient justification for the expansion of production at high unit costs. Indeed, however high these costs may run, there is every likelihood that there will be no let-up in expansion until the average costs of the least efficient producer are so great as to make him the marginal, or extra-marginal, producer. So long as he does not get beyond the "margin" (which is the point at which his average costs are exactly equal to market price), he will be satisfied to produce, since costs of production, it will be recalled, include remuneration for the enterpriser. Owing to the inability of production to adjust itself immediately to changes in demand, there may for a relatively short time be no marginal producer; that is, no producer who would be forced out of business by lower prices than the market prices that are being paid for the product. But this very condition will mean a surplus over and above costs for *every* producer, and additional enterprisers will come into the field until the marginal producer finally arrives, and possibly even extra-marginal producers will come in and remain for a short time.

Significance of Costs of Marginal Producer.—We set out, in the present section of this chapter, to answer the question: How is normal price determined in the moderately long run? We find that it is determined, as price is always determined, by the equilibrium of supply and demand. But we find, further, that there is a tendency for producers to regulate supply in such manner that price in the moderately long run approximates the average costs of production of the marginal producer—the producer who would be producing at a loss if market price, at a given time, were any lower than it actually is. The marginal producer, it must be remembered, is not necessarily the least efficient producer. The average costs of the least efficient producer (as we have demonstrated) tend to fluctuate about market price (and therefore about the average costs of the marginal producer), but are equal to market price only when the least efficient producer happens to be, also, the marginal producer.

INDIVIDUAL PRICES: MONOPOLY PRICE AND
A SUMMARY OF PRICE DETERMINATION

IN THE past four chapters we have been discussing price determination under conditions of competition. We must now give some slight attention to conditions in which competition exists only partially, if at all.

This situation is known by many names, such as "monopoly," "control by combination," and "trust conditions." Perhaps the most usual term is *monopoly*; and we shall employ this term throughout our discussion. Monopoly *may* relate to either supply or demand, but it is most common in connection with the former. We shall limit our inquiry, therefore, to this aspect of monopoly, and may begin by defining complete monopoly as the exclusive control of the supply of any commodity or service in a given market. It is, therefore, the exact antithesis of perfect competition. Our present interest in monopoly has to do with the influence upon prices of that "exclusive control of the supply" which is the outstanding characteristic of monopoly.

The Theory of Monopoly Price.—Monopolists, like enterprisers producing under competitive conditions, are in business for the purpose of achieving economic success. Since economic success is ordinarily measured in terms of money, it is customary in this country to regard as a successful business man the enterpriser who has been able to retain for himself many dollars, after all of his necessary business expenses have been met. The notion that business men are anxious to secure large returns for themselves is indicated in the Theory of Monopoly Price, which says that the intelligent monopolist endeavors to transact his business in a manner which will bring him the *greatest possible total net return*.

The Importance of Supply in Monopoly Price.—Earlier in our treatment of individual prices, we noted the fact that monopoly price, "though determined by conditions of supply and demand, is peculiar in that supply is artificially controlled, being in the hands of a single seller, or of very few sellers. Under monopoly conditions there is bargaining between seller and buyer, but the buyer bargains at a disadvantage because of the absence of competition among sellers." In illustrating the determination of monopoly price, we shall take one of the examples

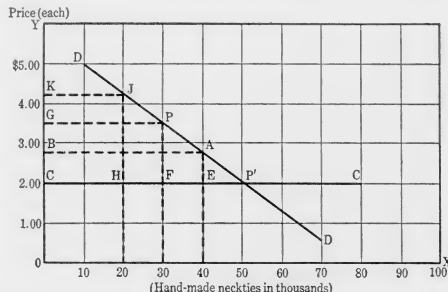


Fig. 37: PRICE UNDER CONDITIONS OF MONOPOLY: Monopoly price tends to be that price which will bring to the monopolist the greatest possible total net return.

already used in discussing long-run competitive price under conditions of constant costs. We now assume, however, a state of complete monopoly, in which one producer has exclusive control over the production of the commodity and may decide for himself whether large or small quantities of the article are to be offered for sale.

Contrast Between Competitive and Monopoly Conditions.—In Figure 37, we have a supply curve and a demand curve which show that, under long-run *competitive* conditions, 50,000 neckties would be produced and sold at \$2.00 each. We made clear, when we discussed this situation in an earlier chapter, that the

price could not be less than costs, since enterprisers would not in the long run continue to produce at a loss; nor could price be greater than costs because a margin of profit would attract new enterprisers and they (again in the long run) would so increase the quantity offered for sale that the price would be brought down to costs of production. But under conditions of *complete monopoly* there is no such thing as competition among producers. Hence, the monopolist is in a position to regulate supply so as to serve his own needs, which means, of course, so as to secure for himself the greatest possible total net return.

Our study of "fixed supply" showed us that once a quantity of an economic good has been produced, the price that it will bring depends largely upon conditions of demand. If, with demand conditions such as are indicated in Figure 37, our monopolist should produce 70,000 neckties and offer the whole output for sale, the fact that he is a monopolist would not save him from selling at a loss; for the demand curve shows that 70,000 ties can be disposed of only if the price is as low as 60 cents, regardless of the \$2.00 cost of production. In a predicament such as this, the monopolist would probably limit the amount of the commodity offered for sale, seeking (since the costs entailed in production were gone beyond recall) to market that amount of his holdings which would bring the greatest *gross* return. This, according to the curve DD, would be 40,000 neckties, which would sell at \$2.80 each and provide a total revenue of \$112,000 to be applied to his costs of \$140,000.

It is extremely unlikely, of course, that an intelligent monopolist would so grossly misjudge the demand for his product, and we have suggested the possibility of so great a miscalculation merely to emphasize the fact that the monopolist, if he is to benefit by his monopoly power, must do so by adjusting production to demand. In making this adjustment he will try to see to it that there is a margin of profit between total receipts and total expenditures, and, in addition, will endeavor to have this margin of profit represent the greatest net return that can be extracted from the situation.

Monopoly Profit Through Restricted Supply.—If our monopolistic necktie manufacturer should produce 50,000 ties, they

would sell (as is shown in Figure 37) at costs of production, and there would be no monopoly profit. But if he restricts production, manufacturing 10,000, 20,000, 30,000, or 40,000 neckties, there will be in each of these instances a return over and above total costs. Consequently the monopolist, seeking not only a net return but the "greatest possible total net return," will examine very carefully a demand schedule made up of his estimates of the prices at which various quantities of his product would sell, and on the outcome of his examination he will regulate his production, manufacturing many units or few on the basis of the Theory of Monopoly Profit.

The Calculation of Monopoly Profits.—Let us suppose that he is able to estimate accurately in advance the conditions of demand represented by the curve DD in Figure 37. Then, knowing that his costs of production per unit will remain unchanged regardless of the quantity produced, he is enabled to draw up a table something like the following:

Units Produced	Unit Prices Obtainable	Total Receipts	Total Costs	Monopoly Profit
10,000	\$5.00	\$ 50,000	\$ 20,000	\$30,000
20,000	4.20	84,000	40,000	44,000
30,000	3.50	105,000	60,000	45,000
40,000	2.80	112,000	80,000	32,000
50,000	2.00	100,000	100,000	
60,000	1.30	78,000	120,000	-42,000
70,000	.60	42,000	140,000	-98,000

This table indicates clearly that it will pay the monopolist to produce 30,000 neckties, which he will be able to sell at \$3.50 each. For this quantity of product yields a monopoly profit of \$45,000. If only 20,000 ties were produced, the advantage realized through the higher unit price would be more than balanced by the reduction in number of units sold; and if 40,000 were manufactured and sold the advantage of the larger quantity would be more than wiped out by the loss in unit price. The proper number to produce, therefore, is 30,000.

If Figure 37 were drawn with absolute accuracy, the greatest possible total net return could be ascertained by measuring the

areas ABCE, PGCF, and JKCH, and determining which of the three is the largest. These areas represent the monopoly profit to be realized by producing, respectively, 40,000, 30,000, and 20,000 neckties. For each of the areas is made up of total receipts, less total costs of production. This being the case, it is apparent that the greatest of the three areas must (in a diagram correctly drawn) indicate the largest monopoly profit. This area will be PGCF (as we learned in the preceding paragraph), and it will pay the monopolist best to manufacture and sell 30,000 ties.

The monopolist, like the manufacturer who operates under competitive conditions, produces in anticipation of demand. He is not able, therefore, to adjust his production perfectly to the demand schedule, because he cannot predict accurately in advance just what conditions of demand will prevail when he is ready to market his product. He proceeds, consequently, on the basis of the best information he can secure; and because his information is never complete he is likely to produce at one time a little more, and again a little less, than the ideal amount. However, he is in a somewhat better position than the competitive producer to adjust production to demand. For the latter is not only doubtful as to the *exact* quantities that will sell at various prices, but he is also at a loss to know how much product will be thrown on the market by his competitors. And (demand being what it is) it is the *total quantity* which if large makes for low prices, and if small brings high returns per unit. The absolute monopolist, though unable to forecast demand perfectly, is at least able to control production, so that production in anticipation of demand is somewhat less risky under monopoly than under competitive conditions.

The Effects of Incomplete Monopoly.—In an earlier chapter,¹ we noted the possibility of an artificial regulation of price by a concern that by no means holds a complete monopoly control. The United States Steel Corporation, with approximately 50 per cent of the steel output of the country, is believed to have exerted a large influence in determining the price at which steel should sell. Mr. H. O. Havemeyer, former president of the American Sugar Refining Company, testified during a federal investi-

¹ Chapter VII.

gation of this so-called "Sugar Trust," that "it goes without saying that a man who produces 80 per cent of an article can control the price by not producing; the price must advance if he does not produce."

We may test this statement by assuming, in our illustration of monopoly, that our necktie manufacturer controls the facilities for producing 80 per cent, or 40,000, of the total output of 50,000

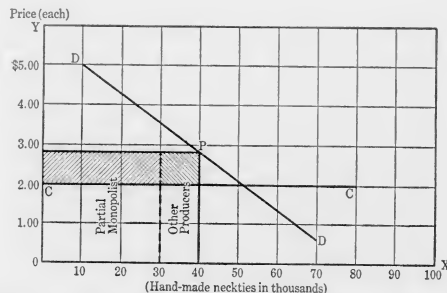


Fig. 38: PRICE UNDER CONDITIONS OF PARTIAL MONOPOLY: A comparison of Figures 38, 39, and 40 shows the possibility of securing a monopoly profit, even in the absence of complete monopoly control.

neckties. If he manufactures up to his full capacity, his productive efforts, added to those of other manufacturers, will place on the market 50,000 ties which sell at \$2.00 each, with no monopoly profit (see Figure 38). But if he restricts his production, making only 30,000 ties, and other producers do not change their output, this arrangement will place on the market only 40,000 neckties. This smaller quantity will sell at \$2.80 each (the price being advanced, as Mr. Havemeyer predicted), and every producer will reap a profit over and above costs of production, as is shown in the shaded portion of the diagram. The chief producer, with an output of 30,000 ties, will have a monopoly profit of \$24,000. If he still further limits production, manufacturing only 20,000 ties, while other producers make their usual quota of 10,000, the unit

price will be \$3.50 and the partial monopolist (with 20,000 units) will have a net return of \$30,000. This situation is shown in Figure 39. This would, under the assumed conditions, be the proper restriction of output, if the leading producer is to make the best use of his strategic position as a partial monopolist.

Insecurity of Partial Monopoly Control.—The ability of a large producer to control price in this way, by limiting his output, depends upon the proportion of his production to total output. It is not possible to generalize on the percentage of total production

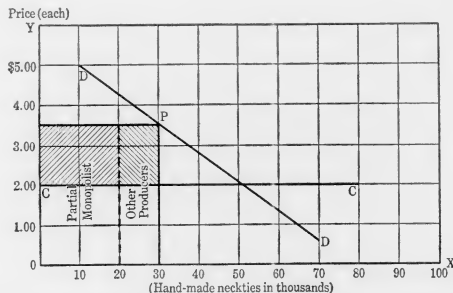


Fig. 39: PRICE UNDER CONDITIONS OF PARTIAL MONOPOLY: A comparison of Figures 38, 39, and 40 shows the possibility of securing a monopoly profit, even in the absence of complete monopoly control.

that must be within one's control before one can hope to influence price by restricting production. The figure would differ widely in different industries. Moreover, the partial monopolist is always in danger lest the other producers, lured on by the surplus profits which he has thrust upon them, should increase their output and thus benefit at his expense.

For example, the 10,000 neckties manufactured by the other producers, when the partial monopolist made 30,000 ties, brought to these "outsiders" a profit of \$8,000. The 10,000 made by them when the monopolist produced 20,000, netted \$15,000 to the outsiders. But suppose, instead of being content to produce 10,000,

they should increase their output to 20,000, as is indicated in Figure 40. Then the total would again be 40,000, with \$16,000 profit for the partial monopolist and an equal amount for the others. An incomplete monopoly is never secure against "encroachments" of this kind.

"Conditional" Nature of Most Monopolies.—Indeed, there are few monopolies, except those that are set up by governmental authority, that can afford to disregard wholly the wishes and

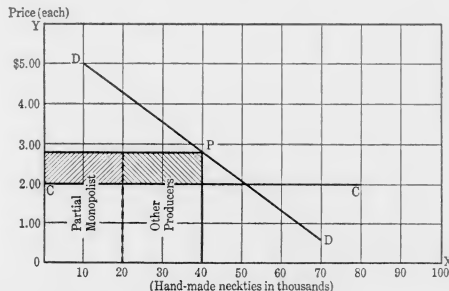


Fig. 40: PRICE UNDER CONDITIONS OF PARTIAL MONOPOLY: A comparison of Figures 38, 39, and 40 shows the possibility of securing a monopoly profit, even in the absence of complete monopoly control.

welfare of the public. It is commonly said that a monopoly charges "what the traffic will bear," and there is doubtless a great deal of truth in this observation. But what the traffic will bear depends upon several extremely important considerations. There are practically no industries, save those protected by special governmental grants, that are completely immune to competition. Make the inducements sufficiently great—that is, let a monopoly use its power to extract very large surplus profits—and in most instances capital and managerial ability will enter the field in the hope of securing part of the surplus. This particular tendency is often called "potential competition" and is listed as one of the restrictions on monopoly.

But even if there should be no likelihood of formidable competition, the use of substitutes is almost always a "way out," if the monopoly should be inclined to abuse its control over supply and thus over price. Few commodities that are left unconditionally in the hands of private enterprise are absolutely indispensable. If a coal monopoly charges extortionate prices, it is possible to turn to the use of oil or gas or, for some purposes, to burn wood. Electricity, gas, and even kerosene may be utilized for lighting purposes. Motor busses can be, and will be, employed if rail transportation is unduly high. The influence of substitutes becomes effective, of course, through a modification of the demand schedule. Indeed, whenever a demand schedule is presented (whether in the form of a table or curve), due allowance has already been made for available substitutes and any other factors that would necessarily affect the shape of the demand curve or the data on which it is based. If worst comes to worst and no satisfactory substitute for a monopoly product can be found, there is always (in the face of great monopoly abuse) the remedy of government ownership or control. Indeed, several of the commodities mentioned in the present paragraph are frequently produced under the supervision of commissions representing the interests of the public. The tendency in this direction is shown in the so-called public utility field, in which railway and street-car transportation, telegraph and telephone communication, and the operation of water works, gas and electric plants and other important "public services" are controlled, and sometimes owned, by a municipal, state or federal government.

Monopoly "By Authority."—Governmental "interference" in industries such as we have mentioned is by no means always the result of monopoly abuse. In many instances it is simply a recognition of the fact that some enterprises must be operated as monopolies if waste is to be avoided. Little would be gained, and much might be lost, by permitting competition among producers of water, electricity, gas and street railway service. Such competition, in most cases, would result in greater capital investment, larger overhead costs, and consequently higher rates. This country has witnessed some of the evils of competition among public utilities and has, for the most part, decided that regulated

monopoly is better than unrestricted competition in this particular field of economic activity.

Patents and Copyrights.—Another kind of monopoly by authority is that which is enjoyed by individuals or business concerns by virtue of the possession of a patent or copyright. The United Shoe Machinery Company, for example, holds a number of important patents relating to shoe machinery, and is therefore able to exercise monopoly control over the leasing of equipment essential to shoe manufacture. It is the ownership of a valuable patent that makes it possible to restrict the manufacture of Gillette safety razors to the "proper" quantity, and thus to hold up the price; though in this instance the publicity that has been given the name "Gillette" has probably played as large a part in building up a monopoly position as the intrinsic worth of the commodity itself. Illustrations of monopoly control through the possession of patent rights could be extended to include many thousands of examples. In many cases, of course, these monopolies are conditional, because of the existence of more or less satisfactory substitutes for patented goods.

A copyright is very similar to a patent in its influence upon price. Books, plays, musical compositions, trade-marks, slogans, and a host of other items may be copyrighted, and their use restricted to the holder of the special privilege unless he chooses to share it with others. When a song, a play, or a book, captures the public fancy as did, respectively, *Yes, We Have No Bananas*, *Abie's Irish Rose*, and *Gentlemen Prefer Blondes*, the monopoly power that goes with a copyright may be converted into hundreds of thousands, and sometimes millions, of dollars. For the exclusive control of the goods in question makes it possible, since competition cannot interfere, to secure for the one in control a large measure of monopoly profit. If, for example, Miss Anne Nichols had not held exclusive rights to *Abie's Irish Rose*, there can be little doubt that, once the play "caught on," she would have had to contend with competition from dozens of other theatrical producers. The result would almost certainly have been the disappearance of monopoly profit, due to price cutting. But since she owned the copyright to the play, she was able to

extract several millions of profit before the money-making possibilities of this comedy were exhausted.

"Good Will" and Monopoly Profit.—In many instances, a trade name will do quite as much as superior quality to sell an article to the consuming public and to put it outside the field of competitive price. The words "Ivory," "Old Gold," "Pepsodent," and "Whitman's" have a sales value which may be, but is not necessarily, dependent upon the excellence of the commodities to which they relate. If, for example, it were possible to manufacture a soap that was 99½ per cent pure, it is more than doubtful that the new product would compete seriously with Ivory Soap which, unless the manufacturers have understated its excellence, is only 99 44/100 per cent pure! The modern answer to Romeo's query, "What's in a name?" can be found in the fortunes that have been built up through the use of copyrighted names such as those we have mentioned. Once a trade name has been impressed upon the public consciousness (usually by dint of high-pressure advertising), the owner of the copyright to that name can ordinarily exact a monopoly tribute from consumers, if only he continues (through magazine, radio, and other forms of advertising) to sing the praises of his wares.

We must not overlook the fact that the prestige of a particular commodity or business house can usually be gained only through the demonstrated ability of the commodity or concern to satisfy the public. If the quality of an article is satisfactory and is steadfastly maintained, and a firm's dealings with the public are persistently fair, it is reasonable to suppose that buyers will be unlikely to withdraw their patronage. Once the reputation of a concern is established, its satisfied customers return to it almost automatically whenever additional goods are needed. Confidence in a product and a friendly feeling toward a business house are the stuff of which "good will" is made.

But confidence and friendship, sad to relate, are not always completely justified. In the world of business, as in other lines of human affairs, they may be misplaced. Lying advertisements have been known to win the patronage of the public and bring huge profits to unscrupulous enterprises. Numerous examples, past and present, could be cited in proof of this statement. It is

sufficient to mention the fact that many, and perhaps most, patent medicines are quite incapable of relieving the ills for which they profess to be remedies; that several popular toilet articles are sold largely on the basis of groundless fears that are aroused by sensational advertising; and that a certain cigar manufacturer suggests luridly, but untruthfully, that cigars other than his are commonly produced under extremely unsanitary conditions. Fortunately, however, good will is ordinarily short-lived unless customers are given at least reasonably good treatment. In any event, good will while it lasts, and whether justified or not, is a

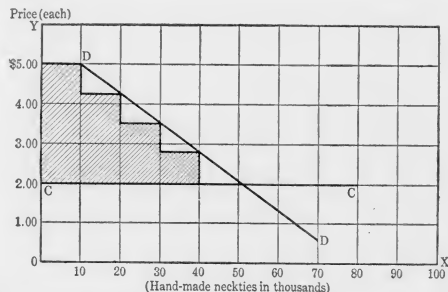


Fig. 41: CLASS PRICE: Through interference with the operation of the Law of One Price it is sometimes possible to secure a large monopoly profit.

source of monopoly profit. To the extent to which buyers patronize a business man who has won their confidence, but whose prices are higher than the prices of others, this business man is in a monopoly position and may reap a monopoly profit.

Class Price.—A demand curve, since it is a graphic representation of the Law of Demand, shows that, while some buyers will enter the market only if the price is low, there are others who would pay exceedingly high prices rather than go without the goods. Figure 41 shows that the first 10,000 neckties of the lot could be sold at \$5.00 each, the second 10,000 at \$4.20 each, and so on down the line. To the seller of a commodity, it must

seem a great pity that he cannot separate buyers into various price-groups, and sell to each group at the maximum price which its members would pay if the quantity offered were conveniently restricted. If, for example, it were possible to sell the 40,000 neckties in batches of 10,000 each to the several price-groups, the total profit would be considerably increased, as is shown by the following figures:

	Units Sold	Unit Prices Obtainable	Total Receipts	Total Costs	Monopoly Profit
First.....	10,000	\$5.00	\$50,000	\$20,000	\$30,000
Second.....	10,000	4.20	42,000	20,000	22,000
Third.....	10,000	3.50	35,000	20,000	15,000
Fourth.....	10,000	2.80	28,000	20,000	8,000
Total Monopoly Profit					\$75,000

Obviously, from the point of view of the seller, it would be very desirable to market a product in this fashion, and thus take advantage of the highest price that each class could be induced to pay. It would be necessary, in order to evade the Law of One Price, to conceal from the groups that were paying the higher prices the fact that the same commodity was being sold to others at lower figures. But the average consumer is so poor a judge of the intrinsic worth of most commodities that the difficulties of concealing the true state of affairs are not great.²

If the ties were offered on four different counters in the same store at the four different prices, it is probable that customers who ordinarily buy \$5.00 ties would see the batch offered at that price, and not the others. And even though they should note the similarity in appearance of neckties at different prices, they would be likely to attribute the difference in price to an imaginary difference in quality. It is entirely possible, then, that 40,000 ties could be sold in the manner that has been described, with the various classes of buyers paying different prices. Whenever a procedure of this kind can be followed, the possibilities of large profits are greatly increased. In our example above, a total of

² The reader who is inclined to question this statement is referred to Stuart Chase and F. J. Schlink, *Your Money's Worth*, (New York: The Macmillan Co., 1929) for specific instances of human fallibility in retail buying.

\$75,000 of monopoly profit has been extracted from the situation (see shaded portion of Figure 41) whereas the best that could be done if all units were marketed at one price by a complete monopolist would be to secure \$45,000 of monopoly profit through the production and sale of 30,000 units.

The outstanding characteristic of class price is an interference with the operation of the Law of One Price. Some writers, in discussing class price, have referred to marketing that is done in batches at different times. A favorite illustration is the publication of a given book at different prices. A popular "series" of a well-known publisher offers to the public, at one dollar a copy, a long list of books which originally sold for as much as four or five dollars each. Having found that purchasers have bought as many copies of a certain book as will be taken at a high price, the publisher arranges (after an interval of some months or years) to have the book appear, in slightly altered form, at a much lower price, and thus gives it a new lease on life.

But this, strictly speaking, is not class price; for there is here no violation of the Law of One Price, which relates, it will be recalled, to a *given time*. It is best to restrict our concept of class price to those cases in which different classes of purchasers are induced to pay different prices for the *same good* at the *same time*. The fees charged by lawyers and physicians are often based on the principle of class price, being adjusted to the paying capacities of clients or patients. Public entertainers, also, frequently modify their charges to meet the needs of the occasion, asking wealthy patrons more than others for identical programs. In cases such as these, class price is possible because the buyers have no way of knowing how much other buyers are paying.

There are doubtless numerous instances of the same goods parading under different names at different prices, making it possible for sellers to charge class price. A classic example is that of forty-cent, fifty-cent, and sixty-cent coffee being sold from the same bin. Another charming illustration is vouched for by the Federal Trade Commission: It appears that the American Feather Bed and Pillow Company marketed the same quality of bedding under different names, at various prices. "The facts were that the bedding was all manufactured from the same grade of feathers,

covered by the same grade of ticking, with no difference in grade, make or quality. As orders were received, a label, suitable doubtless to the purchaser's idea of the proper price to pay, was attached.¹⁹ Class price involves, then, some interference with competition; and this interference seems most often to depend upon the ignorance of the buying public.

A SUMMARY OF PRICE DETERMINATION

The Problem of Value.—We shall now attempt to summarize, in a few pages, our discussion of price determination. It would be impossible to have a highly industrialized economic society, enjoying the advantages of large-scale production and specialization, without making some provision for the ready exchange of commodities and services, allowing the specialized products of one person to be traded easily for the specialties of others. Exchange cannot take place until a *ratio of exchange* between economic goods has been established. This ratio is called "value," and value is defined as the power of a good to command other goods in exchange. The term "value" is synonymous with "exchange value." The problem of value is to discover how this ratio is determined.

Value and Price.—In order to make our problem manageable and avoid clumsiness of expression in discussion, we found it desirable to discard the word "value" and talk about "price." Price is value expressed in terms of money. So long as the value of money itself does not change, that is so long as there is no change in the price level, price is a thoroughly reliable measure of value. In order to remove all possible objection to the use of price, we have assumed, throughout our treatment of price determination, that the value of money has remained unchanged.

Competition and Monopoly.—In four of the five chapters dealing with individual prices, we have assumed the existence of perfect competition; and in the fifth we assumed a condition of complete or partial monopoly. These assumptions were essential to the development of our analysis, just as certain hypotheses are necessary in the study of the physical sciences. But we have been

¹⁹ *Ibid.*, pp. 83, 84.

free to admit that competition and monopoly, in unmodified form, are probably non-existent. "Though monopoly and free competition are ideally wide apart," says Professor Marshall, "yet in practice they shade into one another by imperceptible degrees; . . . there is an element of monopoly in nearly all competitive business; and . . . nearly all the monopolies, that are of any practical importance in the present age, hold much of their power by an uncertain tenure; so that they would lose it ere long, if they ignored the possibilities of competition, direct or indirect."²⁴

Perfect competition, which is a basic assumption in most economic reasoning, is probably as difficult to find in actual economic life as is a perfect vacuum outside the physics laboratory. Nevertheless, we assume the one as we assume the other, in the statement of general principles. And thus we formulate laws or principles which, though not applicable to every particular instance, are yet thoroughly sound statements of general tendencies.

Utility, Demand, Price.—In our examination of price determination, we have paid considerable attention to the part played by utility in the determination of price. A demand schedule, or demand curve, is a series of bids for various quantities of an economic good. Some bids are high, and some low, depending upon diminishing utility, differences in desires, and differences in money incomes. Though buyers will be glad to purchase a good at a price that seems low in view of its utility, no one will pay more for a commodity than appears to be justified by the utility that is likely to be enjoyed through its use. Thus, marginal utility (working through demand) places an upper limit above which price cannot go.

Scarcity, Supply, Price.—Looking at the problem from the side of supply, we see that economic goods command a price because they are scarce, and they are scarce because land, labor, capital, and business ability are scarce and must therefore be paid for. These productive agents are distributed throughout the field of economic society on the basis of opportunity costs, and a given type and quality of agent is paid for at a uniform rate in a given market. The price of an individual commodity is, generally

²⁴ Alfred Marshall, *Industry and Trade*, p. 397.

speaking, the sum of the prices paid for agents used in its production. The supply schedule, or supply curve, is a series of offers of various quantities of an economic good.

Enterprisers ordinarily will not produce a good unless it is likely to bring a price that will at least cover average costs of production, including an adequate return to management. Since production takes place in anticipation of demand, it is not always possible to regulate production so as to insure that the costs of production will be completely covered by the price received. But in the long run, the average costs of production (working through supply) provide a lower limit below which price cannot fall. We have examined price determination under several different conditions of supply, which we shall summarize briefly.

Price in the Short Run (Fixed Stock and Fixed Supply).—*Short-run price* relates to a condition of *fixed stock* or *fixed supply*. Fixed stock is the quantity of a good that exists at a given time. Ordinarily, however, it need not be sold at one time, but only within a relatively short period. Sellers will endeavor, of course, to get the highest possible price for this fixed stock, and will market the good, day by day, in what appears to be the most desirable quantities for achieving this end. The considerations that influence sellers in offering larger or smaller portions of the fixed stock have already been discussed.

Fixed supply is a special case of fixed stock. Fixed supply is a quantity of a good that *must be sold at a given time*. Since it must be sold, the price that it brings bears no necessary relationship to costs of production. Regardless of costs, the good will sell at a price which brings marginal demand into equilibrium with marginal supply. Since marginal supply, under conditions of fixed supply, is a quantity which must be sold at whatever price is obtainable, we may say, for the sake of brevity, that it is marginal demand that determines the price. In short-run price, then, we are considering quantities of goods already produced. Under these conditions, costs of production have no part in the determination of price.

Price in the Long Run (Perfect Adjustment of Production to Demand).—In *long-run price* determination, it is assumed that time has been allowed for productive forces to adjust them-

selves perfectly to changes in demand. This means that there has been time for new enterprisers to enter the field and wipe out margins of profit between costs and price, and also for enterprisers to drop out if their costs are so high that they produce at a loss. Thus, costs of production affect supply, and supply (in conjunction with demand) affects price. The result is that long-run price tends to equal the *average costs of production incurred by the representative firm* in placing the good on the market. Long-run price is often called *normal price*.

Under long-run conditions of *constant costs*, the average unit costs of production (and consequently the price) of a good remain unchanged, whether the demand is great or small. Under conditions of *increasing costs*, brought about by the operation of diminishing returns, the average unit costs of production increase as more units are produced. Under conditions of *decreasing costs*, which result from economies accompanying large-scale production, the average unit costs of production decline as more and more units are produced. In all of these cases the price tends to equal the average unit costs of production of the good.

Price Under Conditions of Joint Supply.—In the case of *products that are produced jointly*, it is impossible to separate their costs of production, except to allocate to each of the products whatever costs may be chargeable to special processing of the product. We have discovered that, in the long run, the total price received for the unit of joint product cannot be greater or less than the average costs per unit of joint product. The division of the total unit price among the several products is determined on the basis of demand.

Price in the Moderately Long Run (Imperfect Adjustment of Production to Demand).—Between the short run and long run, there is an intermediate period—the *moderately long run*—which we have described as a period during which enterprisers are attempting to adjust production so as to meet changes in demand. The adjustment is so far from perfect in this intermediate period that there are various producers operating at different average costs. In the moderately long run, price (determined, as always, by the equilibrium of supply and demand) tends to equal the average costs of production, but the *average*

costs of the marginal producer, and not those of the representative firm. The concept of the representative firm, it will be remembered, applies only to long-run periods.

Monopoly Price.—The price of a commodity produced under *monopoly* conditions does not have any necessary relation to costs of production, even in the long run. Monopoly price may be either high or low, but in any event it is that price which will bring to the monopolist the greatest possible total net return. The monopolist controls price by regulating the quantity of the good that goes on the market.

Some Final Observations.—It may be mentioned that the shorter the period of time under consideration the more important is the part played by demand in affecting price; the longer the period the more significant are costs of production. We may also note, once more, the fact that we are dealing with *tendencies* in our description of economic phenomena. In the short run (as, for example, in fixed stock), the prices actually paid for a good *tend* to equal market price. In the moderately long run, we have a series of prices which oscillate about and *tend* to equal the average costs of production of the marginal producer. And in the long run, the price in which we are interested (which is commonly called long-run normal price) *tends* to equal the average costs of production of the representative firm.

CHAPTER XX

INTERNATIONAL TRADE: FACTS AND PRINCIPLES

IN THE chapter entitled "The Process of Exchange," we looked briefly into the nature of trade and found that, in the final analysis, it consists of an exchange of commodities and services for other commodities and services. Indeed, the true nature of trade is most easily seen in its simplest form, barter, and it is on this account that the student of economics is urged in specific instances to disregard temporarily the money phenomena of modern exchange, and concentrate upon what is often much more significant, namely, the goods phenomena.

Barter, the Essence of All Trade.—In one phase of international trade—the phase that deals with making payment for goods imported and receiving payment for goods exported—the question of money is of considerable importance. But in international trade, as in domestic trade, there is much to be gained, in most instances, by reducing the problem to its simplest terms. If, then, one thinks of trade, whether domestic or foreign, in terms of barter, there is small probability of being led astray by the intricacies of exchange as they appear in our highly complicated economic order.

Similarity of Domestic and Foreign Trade.—Our study of trade within a single country has prepared us for an excursion into the field of international business transactions. For, although domestic and foreign trade are not precisely alike, their differences are less pronounced than their similarities. All trade, it will be recalled, is closely related to specialization, and consists of certain persons exchanging surpluses of economic goods for the surplus economic goods of others.

Moreover, in foreign as in domestic trade, the transaction (with few exceptions) takes place between *individuals*, and not between political units *as such*. When Pennsylvania steel is sold in Florida

and Florida oranges are sold in Pennsylvania, the trade is conducted between individuals or business houses within the two states, and not between the states themselves. In like manner, it is ordinarily the individual business men of Europe and South America, and not the governments themselves, that arrange for (let us say) shipments of coffee from Brazil to France, and shipments of textiles and cutlery from England to Chile.

When we speak, in later paragraphs, of "the foreign trade of the United States," or of some other country, it must be understood that the expression is one of convenience rather than of exactness, and that it is used to indicate trade between individuals located in different countries and not between the governments of two or more countries.

Trade takes place, unless restricted artificially as by a tariff, whenever buying and selling appear to business men to be advantageous. And foreign trade, like domestic trade, is advantageous whenever (as must always be the case in an honest trade) each party to the transaction gives up something that he prizes less highly than that which, through the process of exchange, he receives for this item. Whether the exchange takes place between two or more residents of a small secluded village; or between business men of widely separated states, such as Maine and California; or between the citizens of different nations, the fundamental principles of trade are bound to apply.

Some Complicating Features of International Trade.—In several respects, to be sure, international trade differs from domestic trade. There are, for example, differences in customs of the people, in language, in monetary units, and frequently in tariff regulations. These several items of difference have little or nothing to do with trade that is carried on within a single country, but they often have the effect of complicating trade transactions which go beyond national boundaries.

FOREIGN TRADE OF THE UNITED STATES

We may now give some little attention to the nature of the trade carried on between the people of the United States and those of other countries. In Table XV are listed certain important

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TABLE XV: ESTIMATED BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES, 1928
(Adapted from data in Trade Information Bulletin, No. 625, United States Department of Commerce)

Classes of Transactions	Credit ¹ Cash Claims due U. S. from foreigners	Debit ¹ Cash Claims due foreigners from U. S.	Difference ["+" means balance due U. S.]
	[millions of dollars]	[millions of dollars]	[millions of dollars]
<i>Visible Items</i>			
1. Merchandise (including silver).....	5,334	4,497	+837
2. Gold (shipped or earmarked).....	629	357	+272
<i>Invisible Items</i>			
3. Changes in foreign long-term investments	2,916	3,652	-736
4. Net change in international banking accounts.....		226	-226
5. Interest on private investments.....	882	359	+523
6. Government transactions.....	263	110	+153
7. Freight charges.....	143	227	-84
8. Tourist expenditures.....	168	693	-525
9. Immigrant remittances.....	28	217	-189
10. Miscellaneous items.....	196	221	-25
	20,559	20,559	

transactions in the international trade of the United States for the year 1928.

Visible and Invisible Items.—Of the two main divisions, "visible items" and "invisible items," the former has reference to those international transactions which are recorded in the customs statistics of a country.² Such transactions as do not fall within the scope of this definition are called invisible items.

"There are only three visible items of American foreign trade—merchandise, silver, and gold. Many countries count silver as merchandise, and hence have only two visible items. The number of invisible items of American foreign trade is variously computed. There are no less than twenty by any ordinary method

¹ Credit transactions are those which may be expected to result in payments into the United States; debit transactions are those which will result in payments from the United States to foreign countries.

² Trade Information Bulletin No. 625, United States Department of Commerce, p. 60. Washington: Government Printing Office, 1929.

of counting, and it is possible to count well over fifty of them.¹³ However, for the purposes of the present survey, there is no need to go into detailed listings. The ten items shown in Table XV give a fair notion of the international transactions which enter into the foreign trade of the United States. We shall examine briefly these several items.

1. **Merchandise.**—Most persons, in thinking of foreign trade, have in mind shipments of material goods. Though the significance of such goods in international trade is usually greatly exaggerated by those not familiar with the true situation, Table XV shows that merchandise is, indeed, the most important single item of American foreign trade. More than 50 per cent of the exports of the United States, and more than 40 per cent of the imports, consist of merchandise. Some of the specific commodities of which these exports and imports are composed will be noted later. For the present, we may observe that silver is regarded as an article of merchandise, as also are such things as the sales of bunker coal and oil to foreign vessels, ship repairs, and several other items that totaled, in 1928, about \$200,000,000 of exports as against \$5,129,000,000 of more usual merchandise. Such items are of greater importance in the import trade of the United States than in exports, amounting to about \$400,000,000 as compared with merchandise imports of other kinds totaling \$4,097,000,000.

2. **Gold.**—Gold is shipped from country to country for use in the arts, to settle the balances of international indebtedness (as will be explained in the following chapter), and to serve as reserves in the vaults of central banks of various countries. In some cases the central banks are allowed to retain their holdings of gold abroad, and yet have such gold count as reserves if it is "segregated and marked in such manner as to indicate that the identical kinds or bars earmarked are the bank's property, and altogether subject to its disposal. It is not the practice of the Federal Reserve banks to count as reserve any gold held abroad, but when they have come into possession of gold abroad at a time when they held ample gold at home, they have sometimes

¹³ *Ibid.*, p. 60.

had it earmarked there, largely in order to save expense of shipping to the United States gold that might later require re-shipment."¹⁴

Of the \$629,000,000 of gold appearing in the export column of Table XV, \$68,000,000 was earmarked, the remainder being shipped; while of the \$357,000,000 of import gold, \$188,000,000 was earmarked, and only \$169,000,000 was actually imported into this country.

3. **Changes in Foreign Long-Term Investments.**—Citizens of the United States have made investments abroad which, excluding war debts due the United States Treasury, are believed to amount to more than \$12,000,000,000. The holdings of American securities by foreigners are estimated at \$3,700,000,000. Year by year these investments are increased through purchases of foreign bonds and stocks, or are reduced by sales of such securities or by the payment of matured bonds. In 1928, the holdings of Americans in foreign investments (allowances having been made for certain securities that were sold or redeemed) were increased by approximately \$3,652,000,000. This "debit" item was offset to the extent of \$2,916,000,000 by net gains in foreign purchases of American stocks and bonds which appear in Table XV as a "credit" transaction.

4. **Net Change in International Banking Accounts.**—It is now quite common for banks to have deposits with banking institutions of other countries, largely for the purpose of paying balances arising in international trade. There has also been an extensive development of short-term loans in foreign countries. A recent government statement shows that American deposits and short-term loans with foreigners amounted to \$1,347,047,000 on December 31, 1928, while similar foreign deposits and loans in America reached the total of \$2,985,141,000. However, the net change in America's international deposits and short-term loans for the year 1928 was only about \$226,000,000. The change resulted from a reduction to this extent in our net short-term indebtedness to foreign banks and others.¹⁵ This item appears as a "debit" in Table XV, since the change affected the trade balance

¹⁴ *Ibid.*, p. 52.

¹⁵ *Ibid.*, pp. 47, 48.

in exactly the same way as though merchandise to this amount had been brought into the United States.

5. Interest on Private Investments.—When capital seeks investment in foreign countries, it does so for the reason that investment opportunities abroad appear to be more advantageous than those at home. The investments are made, of course, with the idea of receiving an income from the securities that have been purchased, and this income forms an item of international trade. American private investments abroad have been placed chiefly in Latin America, Europe and Canada. Interest on such investments amounted in 1928 to about \$882,000,000, and foreign holders of American securities received, in that year, interest payments totaling \$359,000,000.

6. Government Transactions.—We have already noted the fact that foreign trade is usually conducted between individuals, and not between governments. There are, however, certain obligations that arose in connection with the World War which have resulted in actual government transfers of considerable size. Chief among these are principal and interest payments of large sums borrowed from the United States by her allies in the war. The largest single item of this kind, in 1928, was the receipt from Great Britain of \$161,400,000, paid on account in partial settlement of her huge war indebtedness to the United States. Receipts of this kind (appearing as "credits" in the table) are likely to continue for some sixty years, at which time the war obligations will presumably have been wiped out.

7. Freight Charges.—Freight charges entering into foreign trade consist of items arising out of ocean, Great Lakes, and land transit. Ocean freight includes American merchandise carried in vessels owned by foreigners, and foreign goods transported in American bottoms. A foreign trade situation exists, also, in connection with traffic on the Great Lakes, in which commodities are moved from the United States to Canada, and *vice versa*. In addition to freight hauled by water, goods transported by rail sometimes enter into international trade. Great quantities of Canadian grain are carried by American railroads from the Great Lakes (usually from Buffalo) to the Atlantic seaboard. An even larger item is that charged by Canadian railways for carrying

American lumber, grain, and packing-house products, which in many cases are reshipped from Vancouver or Montreal. Table XV shows that, in 1928, we paid foreigners \$84,000,000 more for freight transportation than we collected from them for this type of service.

8. Tourist Expenditures.—Expenditures of tourists in foreign countries are also included in the international balance sheet. The expenditures of Americans traveling abroad appear as "debits," and those of foreigners in this country as "credits." It is estimated that in 1928 American tourists spent \$32,000,000 in Mexico, \$237,000,000 in Canada, and \$426,000,000 overseas, making a total of \$693,000,000. "Canadian-American tourist traffic involves a larger total expenditure than that between any other two countries in the world."⁶ Americans, as is well known, do a great deal of traveling, a fact which may be explained in part by the large per capita wealth of the United States. Expenditures of foreign tourists in this country are about one-quarter as great as those of American travelers in other parts of the world.

9. Immigrant Remittances.—Many immigrants who have come to the United States during the past few decades have left behind them in their "old countries" relatives who are partly dependent upon them. From their earnings in this country (which are usually much larger than the incomes to which they have been accustomed in their native lands), these immigrants have frequently remitted considerable sums to their dependents. Remittances of this kind account for a "debit" item of \$217,000,000 in Table XV. The small offsetting item of \$28,000,000 appearing as a "credit" consists of cash brought into the United States by immigrants entering this country in 1928.

10. Miscellaneous Items.—Grouped under the heading "Miscellaneous Items" are imports and exports of electric power; magazine and newspaper subscriptions; disbursements for advertising; cable, radio, and telephone services; missionary, charitable, and scientific contributions, and so on. Contributions to religious, charitable, and scientific organizations constitute the largest single item of this miscellaneous group. In the case of miscel-

⁶ *Ibid.*, p. 11.

laneous items, as in other international transactions, there are both "credits" and "debits." For the year 1928, as is shown in Table XV, transactions of this kind resulted in a net balance of \$25,000,000 due foreigners by the people of the United States.

AMERICAN EXPORTS AND IMPORTS OF MERCHANDISE

In 1928, about 50 per cent of the export items of the United States, and more than 40 per cent of the import items, consisted of merchandise, as is shown in Table XV. We now turn to the consideration of some of the most important articles of merchandise that enter into American foreign trade. In Tables XVI and XVII are listed, respectively, the principal commodities exported from and imported into the United States. The tables are made up from annual averages for the five-year period, 1923 to 1927, inclusive.

TABLE XVI: VALUE OF PRINCIPAL COMMODITIES EXPORTED FROM THE UNITED STATES:
FIVE-YEAR AVERAGE, 1923-1927
(Source: Statistical Abstract of the United States, 1928)

Classification	Value in thousands of dollars
1. Cotton, raw.....	891,634
2. Petroleum and petroleum products.....	464,313
3. Machinery, all classes.....	359,494
4. Automobiles, including engines and parts.....	284,515
5. Wheat, including flour.....	275,291
6. Iron and steel products.....	159,237
7. Tobacco, unmanufactured.....	149,588
8. Copper and copper manufactures.....	147,690
9. Animal fats and oils.....	144,089
10. Coal and coke.....	140,517
11. Cotton manufactures.....	135,113
12. Meats.....	108,725
13. Sawmill products.....	101,997
14. Fruits and nuts.....	100,355
15. Rubber and rubber manufactures.....	51,163
16. Leather.....	49,599
17. Wood products (other than Item 13).....	35,535
18. Naval stores, gums and resins.....	30,627
19. Rye, including rye flour.....	30,000
20. Oil cake and meal.....	27,146

Merchandise Exported from the United States.—Of the twenty items that appear in Table XVI, five are of special interest because of their large contribution to the volume of total exports of this country. Heading the list is cotton, a commodity in the production of which the United States leads the world. Our five-year average gives to cotton an annual export value of about \$900,000,000, but in some years the figure has been above a billion dollars. Most of our cotton exports go to the textile mills of England.

Second in importance are petroleum and petroleum products (such as gasoline, kerosene, and lubricating oils), which we export to the extent of approximately a half-billion dollars' worth a year. The export item third in rank, judged by value of product, is machinery of all kinds, including agricultural and industrial implements, office appliances, printing machinery, and so on, with values approximating \$360,000,000. Next in importance are automobiles, and automobile engines and parts. This item is one of increasing significance. Though the average for the five-year period is only \$281,000,000, there has been a steady advance in exports of automobiles during the past seven or eight years. The figure for 1927 was \$388,000,000.

The fifth and last item of exports which we shall note specifically consists of wheat and flour, which in some years bring to American exporters payments totaling slightly more than \$400,000,000, and in other years somewhat less than that amount. The United States is a consistent exporter of wheat, for the country produces regularly more foodstuff of this kind than can be disposed of in the home market.

Our exports of petroleum are made possible, of course, primarily because important oil fields are located within our national boundaries. We are fortunate, likewise, in having land and climatic conditions favorable to the growth of certain agricultural crops. The suitability of the South for cotton production, and almost ideal conditions for the growing of wheat in the Middle West and North West, enable us to raise these crops so advantageously that it pays to produce both cotton and wheat for export. In machinery and automobiles, we have commodities that are manufactured on the basis of large-scale production. This

is a field of manufacture in which American enterprisers excel; and here, as in the items mentioned above, production is carried on so advantageously that it is profitable to produce not only for the domestic market but for foreign markets as well.

Merchandise Imported to the United States.—In Table XVII, the first four items stand out as exceptionally important, from

TABLE XVII: VALUE OF PRINCIPAL COMMODITIES IMPORTED INTO THE UNITED STATES: FIVE-YEAR AVERAGE, 1913-1917

(Source: Statistical Abstract of the United States, 1918)

Classification	Value in thousands of dollars
1. Silk, raw	379,980
2. Rubber, crude	316,933
3. Sugar, cane	196,090
4. Coffee	163,463
5. Paper and paper manufactures	128,279
6. Wool and mohair	110,894
7. Furs and fur manufactures	108,804
8. Petroleum and products	105,151
9. Hides and skins	100,078
10. Copper, ore, and manufactures	91,239
11. Tin, including ore	86,685
12. Wood pulp	81,879
13. Fruits and nuts	80,745
14. Cotton manufactures	80,739
15. Sawmill products	74,459
16. Wool manufactures	74,354
17. Burlaps	72,176
18. Vegetable oils and fats	71,411
19. Tobacco, unmanufactured	69,834
20. Fertilizers	67,319

the point of view of import values. Just as the cotton goods manufacturers of England look to the United States for the bulk of their raw material, so the silk manufacturers of this country depend upon producers in other countries (notably in Japan) for the raw silk from which to spin and weave silk cloth. So great is the demand of American manufacturers for raw silk, that silk imports total, on the average, almost \$400,000,000 of value. Another important raw material, for which we depend exclusively on other countries, is crude rubber. Owing

largely to our enormous output of automobiles and motor trucks, and the consequent demand for rubber tires, we import annually from the Malay Peninsula more than \$300,000,000 worth of crude rubber, which is here manufactured into rubber products. In one exceptional year (1926) our exports of rubber amounted to \$500,000,000.

We produce in the United States a part of the sugar required by our people, but the bulk of this commodity is imported from Cuba. Our average annual imports of sugar amount to some \$300,000,000. Most of the imported sugar comes to us in the raw or unrefined state, and is subjected to manufacturing processes in American sugar refineries. Coffee, of course, is an article which we do not attempt to grow in the United States. Instead, we import our coffee from South America (chiefly from Brazil and Colombia), and we pay to foreigners for this commodity a little more than a quarter of a billion dollars annually.

Raw Materials versus Manufactures.—Without dealing further with individual items of international trade, we may make the general observation that American exports consist in the main of manufactured goods, and American imports are made up rather largely of raw materials. There are, to be sure, some considerable exceptions to this statement. But the generalization is sufficiently true of present conditions, and it has special significance as indicating a definite trend. At present, approximately 65 per cent of our commodity exports consist of goods partly or wholly manufactured, as against 40 per cent in 1880; and whereas in 1880 we imported only about 20 per cent of our raw materials used in manufacturing, today we import approximately 35 per cent of such materials. We see here an illustration of the well-known fact that America is becoming more distinctively industrial and less distinctively agricultural.

Direction of American Foreign Trade.—Before quitting the subject of American exports and imports of merchandise, we may note briefly the sources of the imports into this country and the destinations of our exported commodities.

Table XVIII gives an idea of the direction of American international trade on the basis of continental divisions. To Europe go 50 per cent of our commodity exports, including cotton and

TABLE XVIII: PERCENTAGE DISTRIBUTION OF UNITED STATES EXPORTS AND IMPORTS, BY CONTINENTS: FIVE-YEAR AVERAGE, 1923-1927
(Source: Statistical Abstract of the United States, 1928)

	Percentage of total exports	Percentage of total imports
Northern North America.....	15.2	11.1
Southern North America.....	9.3	13.6
South America.....	8.0	12.5
Europe.....	50.4	30.0
Asia.....	11.4	19.1
Oceania.....	3.9	1.5
Africa.....	1.8	2.2
	100.0	100.0

other raw materials, foodstuffs, machinery, automobiles, and so on. Economically, Europe is essentially a manufacturing region, and yet Europeans are induced to buy a large quantity of American manufactures, which are attractive because of high quality and low prices. Manufactured goods make up about one-half of our exports to Europe, the other half consisting of raw materials.

Almost 25 per cent of our exports are sold to our neighbors in North America. Two-thirds of these commodities are manufactured goods. Asia, it will be observed, is our next best customer, and our exports to South America are almost as great as to Asia. Two-thirds of our sales to Asia are of manufactured goods while "semi-manufactures and finished manufactures" make up about 95 per cent of the goods exported to South America, Oceania, and Africa.

In imports, Europe again heads the list, sending us 30 per cent of all commodities brought into this country. Three-fourths of these goods are manufactures, a fact which attests to the industrial activity of Europe. Asia comes second in sending merchandise to the United States, with a value (29.1 per cent of all commodity import values) almost equal to that of Europe. Three-fourths of the goods bought in Asia by Americans are raw materials, of which rubber is the most important single item. United States imports from North America are chiefly from

Canada, Cuba, and Mexico. Two-thirds of our purchases from North America are of manufactured goods. The imports from South America, on the other hand, consist of raw materials to the extent of four-fifths of the total. Coffee from Brazil and Colombia, wool from Argentina, and nitrates from Chile account for the bulk of these imports. Oceania and Africa are relatively unimportant in the matter of imports to the United States.

GAINS THROUGH INTERNATIONAL TRADE

Trade, as we have so often said, consists of the exchange of surpluses that arise from the practice of specialization. International trade is the result of geographical or territorial specialization. Nowhere are the benefits of specialization more clearly seen than in foreign trade. This is particularly true in the case of certain materials which depend upon favorable climatic conditions if they are to be produced with small effort. Sugar, coffee, cotton, rubber, and several other commodities fall within this group. Since they may be grown with slight expenditure of capital and labor in some parts of the world, but in other regions only at great cost, if indeed at all, it is obviously advantageous to resort to specialization and exchange in the production of such goods.

Success in Relation to Natural Endowments.—It is generally recognized that success is most likely to attend the efforts of the individual who engages in the type of work for which he is best fitted by nature. Messrs. Dempsey and Tunney have probably achieved greater success in the pugilistic ring than they could have hoped for in academic circles; and, in like manner, our college professors doubtless do well to confine their efforts to things academic rather than to venture into the prize-fighting game. It is equally true that a nation is most likely to prosper economically if it applies its energies to the type, or types, of production in which it is able to engage most efficiently.

Two Important Advantages of Foreign Trade.—In dealing with the benefits of international trade we shall speak from the American point of view, though the choice of country makes no difference, of course, in the principles involved. In general, the people of the United States gain through foreign trade in

that they are enabled, by reason of this trade, first, to enjoy some goods of which they would otherwise be deprived; and, second, to secure other commodities at lower prices (or at least to *greater advantage*) than if the goods were produced in this country.

The Enjoyment of Exotic Products.—The first of these gains is fairly apparent. It is true that bananas, coffee, and the like might possibly be grown in the United States under glass. But we know, as a matter of fact, that production under such conditions would result in prices so excessively high that they could not be paid by the average citizen. Consequently, we are justified in saying that international trade brings to us certain goods which, in the absence of such trade, we should not be able, as a people, to procure.

The Principle of Comparative Costs.—The second gain noted above is somewhat less obvious; and yet a tremendous amount of foreign trade is carried on, not because in its absence a country would be compelled to get along without desirable goods, but rather for the reason that, in the output of an article that could be produced in two countries, it is often advantageous for one country to defer to the other. That is, the country that is less favorably equipped for a special kind of production permits the country that is particularly well prepared, to turn out the goods in question. This latter country thus specializes in making the article, producing enough not only for itself but for the other country as well, with the result that both benefit by the arrangement.

Absolute Advantage.—This principle, which is known as the principle of comparative costs, is readily understood when the advantage is *absolute*, but it is more difficult to see in a case of *comparative* advantage. It is clear, for example, that it would be wise for the experienced banker to concentrate upon the problems of banking, and for his stenographer to specialize in typing and similar work. The point is that each is, in his own particular field of endeavor, more skillful than the other; and it would be wasteful for the stenographer to take a turn at money and credit while the banker pounded the typewriter. The latter is more productive when specializing in money matters than he

is in the rôle of typist; and the stenographer, on the other hand, is more productive in his field of specialization than in determining upon the placing or calling of loans.

By the same token, Brazil is more effective than the United States in the growing of coffee, and this country is more productive than Brazil in the manufacture of farming implements. In this instance, it is said that Brazil has an *absolute advantage* in the production of coffee and the United States an absolute advantage in the production of farm machinery. In cases of this kind, it is clearly the part of wisdom for these countries to indulge in foreign trade, so that the United States may get its supply of coffee, and Brazil its farming implements, at lower prices than would prevail if the two nations attempted to practice self-sufficiency.

Comparative Advantage.—But (reverting to our former illustration) let us suppose that the banker is himself an expert typist and is able to operate the typewriter so skillfully as to exceed the speed of his stenographer. In this instance, he would have an *absolute advantage* in both banking and typing. Should he, then, undertake to act as his own typist, or should he allow his stenographer, who is a less skillful typist than he, to write his letters and other papers? The common-sense answer is that the typing should be delegated to the stenographer; for, though the banker is more productive than the stenographer in both banking and typing, yet he is more productive as a banker than as a typist. Therefore, it will pay him better to concentrate upon banking and allow another to do his typing. Because of the specialization of the banker in the field which is for him most productive (namely, finance), the stenographer is said to have a *comparative advantage* in typing.

Consequences of Comparative Advantage.—We find that a great deal of international trade depends upon advantages of this latter type. So fortunate is the United States in the matter of natural resources, efficient management, and competent labor, that it is able to produce a great many commodities at an absolute advantage. But its advantage in the production of a limited number of articles is so great that in some instances it willingly

surrenders absolute advantage in one form of production in order to embrace more fully a still greater absolute advantage in another.

These items that are neglected by us are then produced at a comparative advantage by other countries, which are thus able to engage in trade with the United States, and both countries gain in the process. It is claimed, for example, that we could produce flax quite as advantageously as any country in the world. But our facilities for growing other agricultural crops are so pronounced (and so superior to our advantages for the raising of flax), that, so far as agriculture goes, we specialize on cotton, wheat, and other farm products, and import our flax from Russia and Belgium.

Effectiveness of Productive Effort.—Whether the advantage enjoyed by a nation is “absolute” or “comparative” does not matter particularly. The important thing is that the people of a country should, from the economic point of view, always engage in those types of production in which their efforts will be employed most effectively. In some economic activities, the laborers of one country may be much more productive than those of another. In the mining of coal, for example, the coal workers of the United States are much more productive than the coal workers of England. It does not follow from this fact that no coal should be mined in England; but if there are other industries in which England has an absolute advantage over the United States, or in which it suffers a smaller disadvantage (enjoying, therefore, a comparative advantage), Englishmen would do well to concentrate upon these industries and leave the mining of coal to the laborers of the United States.

Some Reasons for Productive Superiority.—In suggesting that labor is more productive in some countries than in others, a word of caution is necessary. The expression is not used with the thought of implying that this superiority results from greater industry or skill on the part of the workers, though this might, indeed, be the case. But it is probable that the greater productivity comes more often from conditions other than the workers' greater skill and aggressiveness. In the case of coal mining, cited above, the American worker produces more than twice as much per day as the British worker. But if the American miner were

put to work in British mines, it is likely that his productive superiority would immediately disappear. For this superiority is due chiefly, and perhaps wholly, to the greater thickness and accessibility of coal seams in the American mines and to the employment of more mining machinery here than in Great Britain. Advantages, “absolute” or “comparative,” do sometimes result from exceptional intelligence and skill on the part of labor. But probably more often they are attributable to natural resources or climatic conditions; to the great abundance of capital of modern type; to exceptionally able management; or to a combination of several of these factors.

The gains of foreign trade, then, are similar to the gains of domestic trade. Through geographical specialization, as through individual specialization, the total product is increased. By creating and exchanging surpluses of specialized goods, individuals are enabled to secure more commodities and services than would be available without specialization. If this is true of individuals within a country, it is equally true of individuals in different countries; and foreign trade, as was pointed out at the beginning of the chapter, is trade between individuals and not between nations.

THE SETTLEMENT OF INTERNATIONAL OBLIGATIONS

FOREIGN EXCHANGE

WE TURN now to one of the complications of international trade, which has to do with making payment for goods imported and receiving payment for goods exported. The difficulty in effecting these payments arises partly from differences in the monetary units used in two countries—but it is also due, in part, to the distances involved.

Payments in Long-Distance Trade.—The first of these items does not, of course, affect domestic trade. But the second may prove to be something of a problem within a country of great size. In trade between Massachusetts and California, for example, there is the necessity of making and receiving payment. If a Boston shoe manufacturer sells his product to a San Francisco merchant, he probably receives in payment a check payable at a San Francisco bank. This check he deposits in his own bank in Boston, but the Boston bank must in some way collect from the bank in San Francisco. Prior to the introduction of the Federal Reserve System, a charge was made for this service, theoretically to cover the cost of gold shipment from California to Massachusetts, and loss of interest during the period of transport; though in reality the actual gold was seldom transferred. Check collections of this kind are now made without charge, through the Federal Reserve banks, by means of the Gold Settlement Fund (which was described in Chapter XII), so that the payment of long-distance domestic obligations no longer constitutes a real problem.

Gold as International Money.—In international trade some of the difficulties due to differences in monetary units have been disposed of, in normal times, by expressing international obliga-

tions in terms of gold. Though British paper money would not be acceptable to an American exporter of cotton, since it could not be used in ordinary business transactions in this country, gold to the proper amount is quite welcome, because it can be converted readily, and without loss, into American dollars upon application to the United States Mint. In like manner, American gold is acceptable in foreign countries operating on a gold standard. What we are saying, then, is that gold, because of its general acceptability, serves as money practically throughout the world.

Avoidance of Gold Shipments.—It would be highly undesirable, however, to make payment for all international transactions in actual gold. An arrangement of this kind would mean the shipment of some \$21,000,000,000 worth of gold annually, to take care of the trade transactions between the United States and other countries, as will be seen at a glance at Table XV in the preceding chapter. Fortunately, there is no need to make such huge shipments, for in foreign trade, as in domestic trade, business transactions tend to offset one another. It is a truism in international trade that, over a long period of years, a country cannot sell goods unless it will buy; that is, it cannot hope to engage in export trade unless it is willing also to import goods from other countries. This is a matter into which we shall inquire shortly.

Economy in the Use of Gold.—Certainly, Table XV shows clearly enough that the foreign trade of the United States consists of both exports and imports; and the surprising thing to many persons is that so huge a volume of trade should be transacted with so slight a movement of gold. For the table tells us that, in carrying out \$21,000,000,000 worth of business transactions, less than \$1,000,000,000 worth of gold changed possession. The reason is that, just as in the clearing houses of our banking system, claims are set over against claims, debits against credits, and thus most obligations are canceled without necessitating the shipment of gold.

The general principle involved in the cancellation of debits and credits arising in international trade may be made clear through a very simple illustration. Let us suppose that the Rem-

ington Typewriter Company sells \$10,000 worth of typewriters to the London and North Eastern Railway, and that about the same time the Wedgwood Pottery Company ships a \$10,000 order of china to Gimbel Brothers of New York. These obligations might be settled, of course, by the shipment of gold as below:

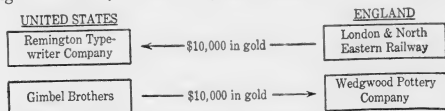


Fig. 42: SETTLEMENT OF INTERNATIONAL OBLIGATIONS BY GOLD SHIPMENTS.

The Cancellation of International Obligations.—But it is troublesome and costly to ship gold to England from the United States, and from the United States to England. We may be sure that these importers, whose problem it is to effect payment, will try to avoid an actual transfer of gold. This would be fairly easy if all four parties concerned were acquainted with one another, and knew of the sales that had taken place. In such event it could easily be arranged that Gimbel Brothers should pay \$10,000 to the Remington Typewriter Company, and the London and North Eastern Railway Company a like sum in British money (£2,055) to the Wedgwood Pottery Company. Through a canceling-out process of this kind, both obligations could be met without the use of gold. The transaction would be as follows:



Fig. 43: SETTLEMENT OF INTERNATIONAL OBLIGATIONS BY CANCELLATION.

This is, fundamentally, the financial transaction that takes place in the settlement of obligations arising in foreign trade, but the process is not quite so simple as it appears above. Our illustration is based upon two assumptions that we cannot make with safety.

The first is that the parties engaging in international trade know of each other's business dealings with foreigners; and this is certainly a far-fetched notion, in view of the large number of persons engaging in such trade. The second assumption, that transactions of exactly equal amounts (in the present case, of \$10,000 each) can be located and canceled out, is likewise not warranted.

The Use of "Foreign Exchange."—For these and other reasons, there has come into existence a class of middlemen who are bankers or private dealers in "foreign exchange" (the name given to foreign drafts or bills of exchange). The introduction of these bankers into the situation removes the difficulties that we have just described. Their presence in the field makes it unnecessary for exporters and importers to know each other; for these bankers provide a recognized market in which exporters can sell their claims against foreigners, and importers can purchase bills of exchange with which to pay obligations due foreign exporters. There is the further fact that these dealers in foreign exchange, like commercial bankers, exchange bank credit for personal credit, and thus render it more generally acceptable.

The entrance of the banker into the picture gives us a situation such as this:

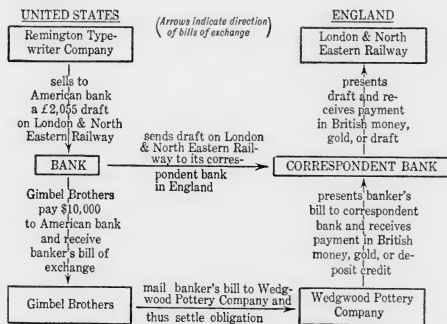


Fig. 44: THE USE OF "FOREIGN EXCHANGE."

The Remington Typewriter Company, wishing to secure payment at once, sells to a New York bank (dealing in foreign exchange) a draft or commercial bill, ordering the London and North Eastern Railway to pay the Remington Typewriter Company £2,055 or its equivalent in gold. This sale of the endorsed draft gives the Remington Typewriter Company immediate possession of the \$10,000 due this concern; and the bank proceeds to collect the draft by sending it to a correspondent bank in London, which in turn presents it to the London and North Eastern Railway Company, and receives payment in British money. Gimbel Brothers, on the other hand, buy from the bank a banker's bill of exchange for £2,055, which it forwards to the Wedgwood Pottery Company; and this concern, by presenting the bill at the correspondent bank, secures payment for the shipment of china to the Gimbel store. Here, again, all claims have been settled without transfer of gold overseas.

"Foreign Balances" of Dealers in Exchange.—We may bring our illustration closer to reality by multiplying instances. It must be understood that not only the Remington Typewriter Company, but thousands of other American exporters, are selling to the American bank claims upon English importers. The bank, by sending the purchased drafts to its correspondent bank in London, builds up in the London organization a large balance which is held subject to the order of the American bank. But, also, the American bank is constantly selling banker's bills (such as that purchased by Gimbel Brothers) which before long are presented for payment at the correspondent bank; and these payments bring about a steady reduction in the balance that is being built up in the manner described above. It must be remembered, of course, that there are many banks dealing in foreign exchange, and many correspondent banks in foreign countries, instead of only the one of each that enters into our example.

In the payments described above, the American concerns took the initiative in both instances; that is to say, the Remington Typewriter Company "drew" on the London and North Eastern Railway, and Gimbel Brothers bought a bill of exchange with which to pay their indebtedness to the Wedgwood Pottery Company. It should be obvious, however, that the British companies

might have made the first move, the Wedgwood Pottery Company selling to the London bank a draft on Gimbel Brothers, and the London and North Eastern Railway purchasing from this bank a banker's bill of exchange with which to remit to the Remington Typewriter Company. There is no universal practice in the matter; in some instances the exporter will "draw" and in other cases the importer will take the initiative and settle the account by forwarding a bill of exchange. Whether one method or the other is employed depends upon the terms of the business transaction between exporter and importer.

It would be possible, of course, for importers always to meet their obligations through the purchase of banker's bills, thus obviating the use of commercial bills such as that employed in the transaction between the Remington Typewriter Company and the London and North Eastern Railway. The effect is the same whichever method is adopted. In every instance importers pay funds into banks of their respective countries, and exporters draw funds from banks, the latter by selling claims upon foreign concerns and the former by buying claims. If, then, the value of all goods exported from the United States to England is exactly equal to the value of goods imported from that country to the United States, American importers will pay into American banks handling foreign exchange, precisely the amount which American exporters will draw out. Likewise, the payments of English importers to British dealers in exchange will equal the withdrawals by English exporters. Under these conditions, all payments necessitated by reason of foreign trade may easily be made without shipment of gold.

"Triangular Exchange."—The settlement of international indebtedness is often a much more complicated matter than is suggested by the simple processes that we have described. We have referred, for example, to the fact that a country's imports are paid for, in the main, by its exports. But in the case of two countries, the one may export to the second considerably more goods than it imports from that country. It would seem, in a case of this kind, that a great deal of gold would have to be transferred in order to make up the balance; and, of course, transfers of gold do take place. There are ways, however, to avoid the

actual shipment of gold in many instances. An example of "triangular," or "three-cornered," exchange, will illustrate this point.

There are some countries from which the United States imports a large quantity of goods, but to which it sends but few goods in return. We have already seen that we buy great quantities of silk from Japan, coffee from Brazil and Colombia, and rubber from the Malay Peninsula. In instances such as these (and especially when the import consists of raw materials from a rather primitive country), our imports from individual countries exceed our exports to these countries. On the other hand, we export to certain countries (as, for example, to England) more than we import from these specific countries. If we add to these facts the assumption that England exports to one of these countries (say, to Colombia) more than she imports, we have conditions such as form the basis of triangular exchange and make it possible to effect settlements without the use of gold.

Since American imports from Colombia materially exceed our exports to that country, whilst our exports to England are greater than our imports, there should be available in New York an abundance of London exchange, but little or no opportunity there to buy bills of exchange payable in Colombia. How, then, shall American importers settle their accounts in Colombia? And how shall English importers pay bills due manufacturers and merchants in the United States for shipments from America to England? The problem is solved by American importers purchasing, in New York, London exchange which can be used for the settlement of debts in Colombia. For London is a world clearing-house for foreign exchange, and exchange drawn on a London bank is acceptable in virtually any part of the world. This London exchange originates through American exporters drawing on English importers, and then selling these drafts to New York dealers in exchange. Therefore, American importers can pay for goods imported from Colombia by sending to Colombian business men the London bills that they have bought in New York.

The bills can then be sold by these Colombian exporters to other persons in their country, who in turn have imported goods from England, and are anxious to have drafts on London with which to meet their obligations. When the Colombian importers

have settled their accounts with English exporters in this way, the exporters present the drafts for collection to the English importers of American goods (upon whom they were originally drawn), and when they are paid all obligations have been met. The several steps in the process are as below:

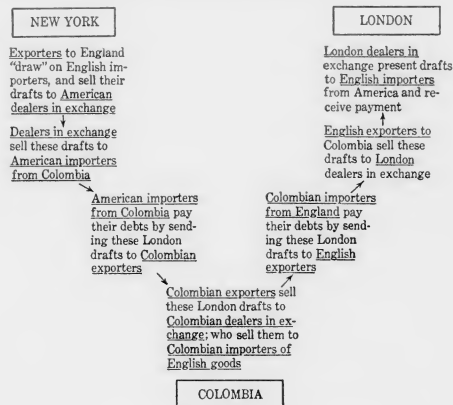


Fig. 45: AN EXAMPLE OF "TRIANGULAR EXCHANGE."

The Rate of Exchange.—Naturally, the bankers handling foreign exchange make a charge for the accommodation; but this charge is paid willingly enough, since the use of foreign exchange makes it unnecessary to send gold overseas in settlement of indebtedness. The monetary unit of the United States is the dollar, and of England the pound sterling. Americans, of course, wish to be paid in either dollars or gold, and Englishmen in either pounds or gold. There is no difficulty about this, however, since the English exporter is in reality paid by the London bank in money which this bank has received from English importers. It is, therefore, British money, or pounds sterling. A similar situation exists in the United States; for American exporters

receive from their banks American dollars that have been paid in by American importers, who require banker's bills with which to settle foreign obligations. This is true so long as exports and imports between two countries are equal.

There are times, however, when exports from the United States to England are either greater or less than imports from England. Let us suppose, for the moment, that they are greater. This means that American exporters are drawing from American banks more than American importers are paying in. In England, the situation is reversed; British importers, through their purchase of bills of exchange with which to pay obligations in America, are paying into English banks more than British exporters are drawing out, for British imports are greater than exports. If American exports exceed imports to a considerable extent, the quantity of London exchange for sale in New York (that is, bills of exchange payable in London in pounds sterling) increases, while at the same time (due to relatively small imports) there is little call for these bills on the part of American importers.

Changes in Exchange Rates.—Applying here the laws of price determination, we see that, because of the large quantity of London exchange offered for sale and the small quantity desired, the price must be low. London exchange in New York is, under these circumstances, said to be "at a discount," that is, it will sell below par. Moving quickly to England, and viewing the situation from that angle, we find that there are many British importers anxious to buy New York exchange with which to pay American exporters. But New York exchange is scarce in London, because there has been little exporting to the United States. As a consequence, New York exchange in London will sell "at a premium," or above par.

We can find the par of exchange by comparing the gold content of, say, the dollar and the pound sterling. A British pound sterling commands \$4.8665 in gold, because it contains 4.8665 as much times gold as the dollar. When exports and imports are at a par (that is, exactly equal in value) the rate of exchange between dollars and pounds will also be at par, and the American importer can purchase bills of exchange payable in London

in pounds sterling, on the basis of \$4.8665 per pound, plus the dealer's commission.

But if exports from the United States to England are greater than imports, he will be able to buy London exchange at less than par, perhaps at \$4.85 per pound sterling. At this same instant, the British importer in London, seeking to purchase foreign exchange payable in New York in dollars, will discover that he must pay more than par for a bill of exchange, that is, for each pound sterling he will receive only \$4.85 worth of American dollars.

It should now be clear that an excess of American imports over exports will reverse the situation, and London exchange will, in New York, sell at a premium (say, at \$4.88 per pound), whilst New York exchange in London will sell at a discount; that is, a pound sterling will buy more than a normal amount of dollar purchasing power—\$4.88 worth, to be exact. The problem, then, is one of supply and demand. The price of foreign exchange is low when there is an abundance of it available, and the price is high when bills of exchange are relatively scarce.

"Gold Shipping Points."—There are, however, heights and depths beyond which the price will not go. These are known as the "gold shipping points," and they represent deviations from par beyond which it will pay the importer to ship actual gold in payment of his foreign obligations. If the shipping costs of a pound sterling between New York and London (covering transportation, insurance, and all handling charges) are, say, two cents, then the American importer will refuse to buy London exchange if the price goes above \$4.8865, since it will be cheaper to ship gold than to pay a higher price for bills of exchange. Similarly, American exporters in selling to American bankers their claims upon British importers, will not take less than \$4.8465 per pound sterling, for it would be more profitable to have gold shipped from England in settlement of their claims than to sell the claims at a figure smaller than the amount mentioned. When there are no obstacles to the free movement of gold, the rate of exchange is ordinarily held between these upper and lower gold shipping points.

Purchasing-Power Parity.—Thus far, we have been consider-

ing foreign exchange between countries which are on a gold basis. But there are times (such, for example, as in the period following the World War) when one or more countries go on a paper basis, and there ceases to be a free movement of gold. If two countries, one on a gold basis and the other on a paper basis, engage in trade, it will be impossible to maintain exchange rates on a gold parity, and there will be a shift to what is known as "purchasing-power parity." This means that the par of exchange (the ratio that prevails when exports and imports are equal) will, under such conditions, be based upon the purchasing power, and not the gold content, of the two kinds of money.

Let us take the case of France and the United States after the war. At one time, the purchasing power of the franc, as expressed in dollars, was only one-fourth as great as it had been in normal times before the war. This decline in purchasing power was due chiefly to the great increase in the volume of paper money in France; for the French government, in order to meet its running expenses, had issued so much paper money that the price level was driven up, and paper money was no longer convertible into gold. Since paper francs were not generally acceptable outside of France, and gold francs were not obtainable by exporters sending goods into France, the gold parity between the French and American exchange disappeared, and the rate of exchange adjusted itself roughly to a ratio suggested by the purchasing power of the money of the two countries.

If we suppose the price level in the United States to have remained unchanged during this period of rising prices in France, but prices in France to have increased so greatly that it took four francs (paper) to buy as much goods entering into foreign trade as could formerly be purchased with one franc (gold), we may be sure that the rate of exchange, also, will have changed. There will be a tendency, in a situation of this kind, for the normal rate of 1 dollar = 5 francs to change to the rate of 1 dollar = 20 francs. The exact ratio is dependent upon several factors, so that a precise figure cannot be stated. The certain thing is that, in New York, exchange payable in Paris in francs will be at a discount, since the usefulness of francs to Americans will depend

upon the quantity of desirable goods that francs will buy in France.

It should be noted, further, that there will enter into a situation such as we have described an element of speculation. If, for example, it seemed likely that francs would eventually be redeemed in gold, they would on this account be esteemed more highly, and the exchange rate might be more favorable than 20 to 1; say, 18 to 1. If, on the other hand, there were a probability of a still further and speedy increase in the price level in France, franc exchange might sell in New York at a still greater discount than is represented by the ratio of 20 to 1.

The principle of purchasing-power parity should be reasonably clear if one remembers that foreign exchange is bought for the purpose of securing a medium of exchange which will be acceptable in another country. The price that this medium brings will, of necessity, bear some relationship to its purchasing power in that country. Hence, if the price level of the foreign country is abnormally high, the monetary unit of that country will have but small purchasing power, and bills of exchange expressed in terms of this unit will consequently sell at a discount.

THE BALANCE OF TRADE

We have yet to consider two terms that are met with continually in the literature of international trade, and also to examine briefly the basis of the contention that, in the long run, the exports and imports of a country tend to be equal.

"Favorable" and "Unfavorable" Trade Balances.—A trade balance is said to be "favorable" when the merchandise exports of a country are greater in value than the imports; and it is "unfavorable" when the imports of merchandise are in excess of the exports. These terms originated many years ago, when it was considered advantageous for a nation to sell abroad more goods than it imported, so that it might receive gold in payment for the balance. We have since come to realize that the possession of a very large quantity of gold, far from being desirable, may be distinctly undesirable, because of its effect upon the credit-currency system and the price level. Consequently, the

terms "favorable" and "unfavorable," when used in connection with a foreign trade balance, are likely to be misunderstood. It would certainly be clearer to refer to an "excess of exports" or an "excess of imports"; but the other expressions have become so firmly fixed in our economic language that there seems to be small hope of ousting them.

With the development of international trade in the past few centuries, there has come the further realization that a disparity between merchandise exports and imports does not necessarily lead to a movement of gold. For there are many "invisible items" that enter into the international trade balance just as truly and effectively as do items of merchandise. Thus, for many years, the United States sent to England an excess of commodities, but it received shipping, banking, and other services that went a long way toward evening up matters. For some purposes it is helpful to think of the trade balance as relating to exports and imports of merchandise; but, in the remainder of the present chapter, we shall speak of a *general* trade balance such as appears in Table XV, including all goods and services that enter into foreign trade.

The Trade Balance.—It is only when we include items of all kinds that we may safely make the statement that there is a tendency for exports to equal imports. If the exports of *all items* (or credits) are greater than the imports of *all items* (or debits), then there is, of course, an excess of exports over imports, and gold will be shipped to balance the account. The statement that exports and imports tend to balance finds support in Table XV, since it is here shown that a very large volume of business has been transacted between the United States and other countries, with only a slight transfer of gold.

Of course, it is possible to make international payments by the transfer of securities, instead of sending merchandise, services or gold in payment for imports. (See Item 3 of Table XV.) But this is merely a temporary expedient. It serves only to delay the day when payment must be made in economic goods. When that day finally arrives, it will be necessary to redeem these securities (which are simply promises to pay) by sending to those who hold them either merchandise, services, or gold. In the

main, then, commodities and services have been exchanged for commodities and services.

Maintenance of the Trade Balance.—This is necessarily the case, as an understanding of the nature of trade makes clear. Ordinarily, people buy in their own communities, and certainly in their own countries, unless there is an advantage to be had through purchasing in a more distant region. If, for example, Englishmen import goods from the United States, they do so because they can buy here to greater advantage than at home. This would mean, in all probability, that certain commodities were obtainable at lower prices in the United States than in England. Otherwise, there would be no incentive to buy at so great a distance.

Therefore, if American exports should continuously be greater than imports, we should expect to find the cause in the lower prices that prevail in the United States for goods that are desired by foreigners, and the high prices in other countries for goods that might be purchased by Americans except for the fact that they can secure them at lower figures right at home. But if the United States continued for a long time to have larger exports than imports, the balances, year by year, would be paid in gold; and this gold would increase the quantity of circulating media in the United States and thus raise the price level.

An increase in general prices would eventually make itself felt in international trade. For not only commodities that are sold at home, but those entering into international trade as well, would advance in price; and, in the course of years, these goods would be offered only at figures which were prohibitive, so far as foreign purchasers are concerned. For, just as the influx of gold to the United States would raise prices, so also its flow from other countries would lower price levels in those particular countries; and thus it would become increasingly difficult for American business men to quote prices that would induce foreigners to buy in the United States instead of at home. Indeed, we might expect prices in foreign countries to decline so greatly that American purchasers would be attracted, and as a consequence American imports for a time might exceed American exports. We have, then, in the movement of gold a device which tends

to bring about an equilibrium between exports and imports. If the balance is upset to a very great extent, a movement of gold takes place which in time may be counted upon to restore the equilibrium once more.

One further comment on this subject may be desirable. Though a country's *total* exports tend to equal its *total* imports, there is no need for its imports from a given individual country to equal its exports to that country. We have noted, earlier in the chapter, that United States imports from certain South American countries are considerably greater than United States exports to these countries. But this discrepancy is offset by an excess of American exports to other countries. A situation such as this does not necessarily cause a shipment of gold, as we saw in our discussion of "triangular exchange," and does not, therefore, ordinarily affect price levels. It should now be clear that, when we speak of a country's exports equaling its imports, we refer to total trade (including both visible and invisible items) and have in mind an equality of exports and imports in the country's dealings with the rest of the world, and not with individual nations.

THE HANDLING OF BUSINESS RISKS

Risk of one kind or another appears to be a universal phenomenon. As some one has said, "This is a dangerous world, and few of us get out of it alive." We are continually being forced into making decisions. And whenever there is a choice to be made between two or more possible courses of action, there is always the chance that the wrong course may be chosen. No life, it may be said with assurance, is wholly free from risk and uncertainty.

The Riskiness of Business.—Risk is ever present in the field of economic endeavor. There is always the possibility that either the demand for or the supply of economic goods will change in such manner as to affect seriously the welfare of consumers or producers, or both. Every few years, for example, some thousands of Chinese citizens suffer starvation by reason of famine in one or more sections of their vast country. On the other hand, American farmers sometimes go bankrupt because their crops of cotton or wheat bring less than actual costs of production, owing to the excessive size of the harvest and a consequent glut of the market.

Agricultural production, of course, is largely at the mercy of nature. Too little rain, or too much, destroys millions of bushels of grain, and a stretch of unseasonably cold weather ruins peach orchards and orange groves. Moreover, if nature is too bounteous the effect upon the producers is almost as disastrous; for exceptionally large harvests very commonly mean losses instead of gains, because of the low prices that result. The hazards of agricultural producers, however, form but one of the many types of business risk. In manufacturing, merchandising, transportation, banking, and other branches of economic life, there are possibilities of loss. Indeed, it is doubtful whether one can find anywhere in the business world a form of productive activity in

which there is not at least some element of uncertainty. It is the risks of economic producers with which we have to deal in the present chapter.

THE TIME RELATIONSHIP OF PRODUCTION AND DEMAND

The Problem of Fixed Capital.—Some of these risks of economic life are attributable to the fact that production today is usually very "roundabout," and is ordinarily highly specialized. The roundabout process involves the use of large quantities of capital, both fixed and circulating; and some of the fixed capital purchased by the enterpriser today may be in use for a score or more years. With production spread over so long a period, the chances that there will be changes in productive methods, or in demand, are great.

It is possible that the capital in question will be highly productive to the very last; it may even be of a type, the purchase price of which will increase as the years go by. In this case the owner will enjoy a goodly margin of profit. But it is equally possible that the kind of capital that is bought will, long before it is worn out, be rendered obsolete and useless through the invention of new processes, or changes in the desires of consumers; and in such event, a loss will be suffered. It is on this account that patents are sometimes bought up and then quietly shelved (instead of being utilized) until the enterpriser is able to put them into operation without what appears to him to be a premature "scrapping" of machinery that is still productive. In general, the longer the life of the capital, the greater is the probability of loss of this kind in place of gain.

Risks Resulting from Specialization.—Specialization, also, usually spreads production out over a considerable period of time. Not only does specialization divide work up among many persons, but it frequently calls to its aid producers in all parts of the world. If we attempted to trace the beginnings of a suit of clothing or a pair of shoes, we might easily find ourselves carried to a sheep ranch in Australia or a cattle ranch in Argentina. Producers of raw materials far and wide are going ahead with production in the hope, but with no certainty, that their goods

can be sold at a profitable figure. The same hope and uncertainty are shared by other specialists along the line of production, through whose efforts the raw stuff eventually becomes finished goods. It must be remembered that there is little or no correlation between these various specialists, and, in the absence of centralized control, it would be nothing short of a miracle if sellers desired always to sell at a given price precisely the amount that purchasers desired to buy at that price.

What often happens is that when the product of all specialists of one type is brought together, the quantity of goods available, at a given time, is either so small that producers are able to command a price materially above expenses of production; or, on the contrary, it is so large that they must accept for their goods less than full costs of production.

Production in Anticipation of Demand.—Production, then, is carried on largely in advance of demand. Our reference to risks resulting from the roundabout process gave some notion of the chances that are taken by business men who invest in fixed capital which they count on using for many years. But risk attaches, also, to business projects that are completed in a much shorter period. Productive forces are set to work today on the manufacture of goods that will be ready for sale a few months or a year hence. But will the work be accomplished as quickly or economically as the enterpriser anticipates? On this point, he cannot be certain. The cost of raw materials, labor, and power may rise unexpectedly, and, if the manufacturer is producing on contract, he may have to deliver at a loss. If, as is more likely, he is producing "for stock" and not on special order, a strike of his employees, or some other unforeseen event, may so interfere with production, and so increase expenses, as to bring appreciable losses.

If our enterpriser is a farmer, he has to face the hazards of unfavorable weather, insect pests, and so on. There is always, therefore, the possibility that production may not measure up to the enterpriser's expectations—expectations which were entirely warranted by the conditions existing at the time his estimates were made.

Changes in Market Conditions.—But the marketing of a product is often a more hazardous undertaking than making it in the first place. What assurance has the business man that the finished goods will be desired sufficiently by the public to enable him to dispose of them on satisfactory terms? The fact that production precedes demand brings into the situation a large element of uncertainty. Obviously, a given manufacturer will want to produce as much goods as he can sell at a profitable figure, but the problem of determining the amount is a serious one. He has, first of all, to try to predict the quantity of goods that the public will buy at a price large enough to cover all costs of production. Then he must undertake a most difficult task—that of estimating the quantity of the article that will be thrown upon the market by other producers.

Added to these difficulties is the possibility that the tastes of potential buyers will have changed by the time the goods are ready for sale, or that their purchasing power will have declined, with a consequent reduction in the quantity that can be sold. Fashions change, and sometimes very quickly, as witness recent developments in automobiles, radio receiving sets, popular literature, women's costumes, coiffures, and so on. Extensive changes in the demand for goods sometimes spell ruin to a business man. The shift from wool to silk and rayon for women's dresses, the reduction in the quantity of material used, the serious decline in the sales of men's shoes, and the like, are examples of modifications in demand that have taken place, sometimes slowly and again suddenly, but in every case with a profound effect upon the fortunes of business men. The effect upon some enterprisers, it will be noted, is detrimental, and upon others beneficial. But the presence of risk in the marketing end of business is beyond question; and the losses, when they come, may fall upon either manufacturer or merchant, or both.

Who Are the Risk Bearers?—All of the factors of production share, although unequally, in the risks of economic life, unless methods of shifting the hazards are developed. The owners of land are perhaps less liable than are capitalists, laborers, and enterprisers, to suffer loss through economic uncertainties. For land possesses a substantiality that makes its physical destruction

improbable, and it is so essential to all phases of human existence that the demand for acres and square feet is more likely to increase than diminish. However, the owner of agricultural land is always under the necessity of seeing to it that his tenant farmer does not exhaust the fertility of the soil; and the owner of urban land sometimes finds his holdings "blighted" (or reduced in value), owing to shifts of business or residential districts to new locations. On the whole, it appears that the uncertainties attaching to land values work to the advantage of the owners; that is to say, rises in land values are much more frequent, and more extensive, than declines. This is true because the growth of population causes a steadily increasing demand for land while, at the same time, it is practically impossible to add to the total supply.

The owners of capital, in the main, bear a larger share of risk than do owners of land. Capital (such as factory, machines, and tools) may be ruined by fire, flood, or other destructive forces; or its value may disappear wholly, or in part, as better forms of capital make their appearance. There is, also, the possibility of the loss of one's capital through fraud or lack of ability on the part of the enterpriser to whom it has been intrusted. The large toll of industrial bankruptcies is indicative of the fact that investors do incur risks in lending their funds to business enterprisers. These risks, as we shall see later in our study of distribution, form a part of the interest charge. Investors weigh, perhaps very inaccurately, the amount of risk that is involved in buying a certain bond or share of stock. The more hazardous the investment, the higher must be the interest rate on bonds or the dividends from shares of stock, if capitalists are to be induced to lend their savings.

In the case of land purchase or capital investment, the risk involved is assumed by the individual himself. He decides to "take a chance"; and the longer the chance, the greater must be the return if his venture turns out well. We may dismiss, thus briefly, these two types of economic risk, and consider at greater length the more complicated hazards of the enterpriser and the worker, together with certain methods of handling the risks which they run.

RISKS OF BUSINESS ENTERPRISERS

The enterpriser, it will be recalled, is the person, or group of persons, who combines land, labor, and capital into a going business unit and assumes responsibility for its proper functioning. The enterpriser is the party to whom the landowner looks for rent (if the business site has been leased), workers for their wages, and capitalists for interest. The ability of the enterpriser to meet all of these claims depends not only upon managerial ability in the conduct of his business, but also upon the proper handling of business risks, to the end that these risks shall be rendered as slightly burdensome as possible. Indeed, if the enterpriser can go his competitors one better in the wise treatment of industrial hazards, he may find here a source of considerable saving, and hence of profit. We note, now, some of the specific risks of the enterpriser.

Land Title Risk.—Let us assume that the enterpriser has purchased a business site for the erection of his factory. The land now appears to be his, but there is the possibility that, sooner or later, another may turn up and challenge his claims to ownership of the property. To avoid the worry, inconvenience, and expense that would be entailed, should a claimant of this kind appear, the enterpriser may go to a title company, have a "search" made, and then, by making a small payment, secure a clear title to the land. He now has a guaranty of his ownership of the site and the assurance that any claim that may be brought against it will be fought by the title company. Moreover, should such claim be settled adversely to the enterpriser, he must be reimbursed by the company for any loss that he may suffer.

Property Risk.—Once the factory is built and fully equipped, the owner may wish to avoid the loss that would be his if the property were destroyed by fire, earthquake, tornado, or other calamity. This he may do by shifting the risk to insurance companies whose business it is to specialize in risk bearing. Having paid the necessary "premiums" (the relatively small charges that are made for the service), he rests assured that should disaster of the specific kinds insured against befall him, his losses will be

met by the companies that have insured him. It is possible, likewise, to insure raw materials, finished goods, and other forms of property against damage of various kinds.

Risks of Dishonesty.—Insurance against theft, robbery, and burglary may also be purchased. One type of insurance, known as "suretyship," protects the business man against dishonesty on the part of his own employees. The process consists of "bonding" the employees up to a stated amount; and thus the surety company becomes responsible for the peculations of the individual who has been bonded. It is the custom of many concerns to take out insurance of this kind on employees who hold positions of trust and responsibility.

Risks in the Purchase of Materials.—All progressive business concerns now buy their materials on the basis of definite "specifications," in which are set forth the standards to which these materials must conform. Going one step further, they often test the materials in their laboratories when they have been delivered. In this way they avoid the possibility of inferior goods being foisted upon them.

Another precaution that is sometimes taken in the purchase of materials is designed to protect the buyer against price fluctuations which might result in losses. The process is known as "buying futures" and "hedging," and will be dealt with later in the chapter under the heading "Constructive Speculation."

Risks in Production.—Using the term "production" in the restricted sense of the creation of form utilities, we may repeat the statement, made in an earlier paragraph, that there is a large element of uncertainty in this field of business activity. The task of estimating in advance the cost of producing a given quantity of goods is a difficult one. A printing house, for example, is asked to bid on a certain job of printing. In order to secure the contract, in competition with others, a close estimate must be made. But when the job is completed, it may be discovered that the price quoted was too low, because of (let us say) a lack of effectiveness on the part of labor, or a sudden advance in the price of paper or ink, or the temporary failure of an electric company to supply power, with a consequent enforced idleness of the pressmen.

Production of goods for stock also is subject to uncertainties. Some of the hazards of the productive process are being eliminated by the substitution of scientific management for the old "rule-of-thumb" methods. Work is now being more carefully planned than in the past; the productive powers of employees are better known; materials are purchased and stored in such manner as to lessen the probabilities of waste; and the whole process of production is under more complete control. As a single example of the gain in certainty to be realized through scientific management, we may mention the use of time studies (described in an earlier chapter) in predicting the effectiveness of labor. If adequate time studies have been made, it is possible to estimate with a high degree of accuracy just how much time will be required for the completion of a job, and the labor cost involved. In the absence of such studies, estimates of labor cost are naturally faulty. Through the development of exact knowledge to replace mere guesswork, some at least of the uncertainties of production can be removed.

Risks in Marketing.—Accurate knowledge may also be prescribed as the most effective remedy for risks in marketing. It is no small undertaking to analyze a market and determine the sales possibilities of a given commodity. But unless a scientific analysis of the situation is made, it is next to impossible for an enterpriser to estimate satisfactorily how much goods he may reasonably expect to dispose of. In making an analysis of this kind, it is necessary to determine the class or classes of concerns that may be expected to purchase the article in question, the number of consumers in each class, and hence the number of potential buyers under normal conditions. Factors that play a part in the making of a market are the "purchasing power, living conditions, occupations, racial characteristics, climatic conditions, and numerous other influences affecting the different classes of consumers."¹

But knowledge of abnormal conditions, also, is important in connection with avoiding marketing risks; and the desire of business men for advance information on business fluctuations

¹ M. P. Copeland, *Business Statistics*, p. 178. Cambridge: Harvard University Press, 1917.

has given rise to the relatively recent development of business forecasting, as practiced by such organizations as the Harvard Economic Service and the Babson Statistical Service. On the theory that history repeats itself, these "services" have been established to make careful studies of the volume of production (particularly in iron and steel), price movements, banking activities (including interest rates), stock market conditions, business failures, and other data which are thought to indicate business trends. On the basis of these studies business forecasts are prepared and sold to those who are sufficiently interested to pay the price. It is thought by some economists that information of this kind will eventually be quite effective in lessening risks in both production and marketing.

Business Risks and Profits.—We have sketched a sufficient number of business risks to enable us to see clearly that the uncertainties of business enterprise are many and great. There is a tendency, on the part of progressive business men, to eliminate or lessen their hazards through the adoption of more scientific business methods, as in the handling of men and materials, and the development of better marketing practices based on statistical data. Of the risks that cannot be done away with, or reduced appreciably, some are shifted to insurance companies; others, again, must be borne by the enterpriser himself. For, as Professor Marshall points out, "no insurance can be effected against the great majority of business risks. [For] the greater part of business risks are so inseparably connected with the general management of the business that an insurance company which undertook them would really make itself responsible for the business; and in consequence every firm has to act as its own insurance office with regard to them."²

Many of the risks that cannot be insured against arise because goods are produced in advance of demand. The unpredictable changes that take place may result in a surplus remaining after all necessary expenses of production have been met. This surplus is known as "profit," and will be dealt with in a later chapter. But it is equally possible that there may be a deficit after all costs of production have been paid. It is held by some that there

² Alfred Marshall, *Principles of Economics*, Eighth Edition, p. 398.

is a tendency for profits and losses to equal each other and cancel out over a long period of years. It is certainly true that unless the profits of a given concern are, in the long run, at least as great as its losses, the concern must go down in defeat.

RISKS OF INDUSTRIAL WORKERS

It is peculiarly the function of the business enterpriser to assume economic risks. But a recognition of the enterpriser's responsibility in this connection must not be allowed to obscure the fact that industrial workers, also, have a large stake in the businesses to which they give their time and efforts. We shall indicate certain risks that fall to the lot of workers in modern industry, together with some methods that have been devised for meeting these risks.

Risk of Temporary Unemployment.—The possibility of losing his job is a business risk of the industrial employee that causes a tremendous amount of worry. Estimates of unemployment in the United States vary greatly, but it is probable that the average number of persons unemployed in this country is somewhere around two million. In times of prosperity, this number may be halved, but in periods of depression it is believed that as many as five million persons, willing and anxious to work, are out of employment in this country alone.

Unemployment may be due to seasonal fluctuations in a given trade, as in the bituminous coal industry, which provides its laborers with only about 215 days of work annually; or it may be the result of general business depressions, which, as we have seen, form a part of the so-called business cycle. Thus, in the depression of 1921, between five million and six million persons were involuntarily deprived of their jobs because business in general was languishing.

Whatever the causes of temporary unemployment, the hazard is a very real one. And, in the United States at least, it is a business risk that is being borne by the workers themselves. Something, but not much, has been done to lessen seasonal unemployment by combining two businesses that have their "rush seasons" at different times of the year. For example, a manufac-

turer of ice-cream cones recently equipped his plant with machinery for baking sugar wafers so that, during the winter when the cone business is dull, he might be able to keep his factory running full time. In some branches of the clothing industry, and in other unionized trades, there are guaranties of a minimum amount of employment annually. Plans of individual concerns, aimed at relieving unemployment, have been adopted by the Columbia Conserve Company, the Procter and Gamble Company, the Dennison Manufacturing Company, and a few others.

Unemployment is one of the risks of business that could be insured against; and it is urged by some that insurance of this kind might properly form a part of the expenses of production, as do the costs of fire insurance at the present time. However, though England and several other foreign countries have put into operation compulsory unemployment insurance (financed by employers, employees, and the government), there has thus far been nothing of this kind in the United States.

The Risk of Permanent Unemployment.—Much more serious than temporary unemployment is the permanent loss of one's job. The risk of such loss is always present in an age of rapid technological advance. The worker who has spent years acquiring specialized skill may see this skill rendered wholly or partly valueless by the invention of a machine to perform the task much more quickly than the old hand method. Displacement of hand workers by the machine process caused suffering in the very beginnings of the Industrial Revolution, when power spinning machines took the place of spinning wheels and power looms were used instead of the old hand looms.

A more recent example is the economic hardship borne by glass workers in New Jersey, owing to the development of the Owens automatic machine for the manufacture of glass bottles.³ Because of the invention of new machinery in the bottle industry, the wages for workers in this trade were twice reduced within the space of four years. Wages had been stationary from 1890 to 1909. In the latter year there was a reduction of about 20 per cent, and this was followed by a similar reduction in 1912, mak-

³ This illustration is taken from *Factors Affecting the Bargaining Power of Workers in the Glass Bottle Industry*, by H. LaRue Frain, in the *American Economic Review*, September, 1927, pp. 429-447.

ing the wages in that year 36 per cent lower than the 1890-1909 wages. Since that time there have been several increases, but these were not sufficient to more than offset the rising cost of living, so that we may safely say that the real wages of certain workers in the glass bottle industry are fully one-third lower than they were in former years; and that this decline came as a result not of decreased efficiency, or lessened skill, or any other circumstance within the control of the worker, but simply because of the invention of a labor-saving machine.

The economic significance of an incident of this kind is easily seen. These workers have small chance of starting anew in another field, because most of them are men who have given years to acquiring skill in glass making and who have passed the period when learning a new trade is an easy task. They are destined, therefore, for the most part, to accept the reduced wages which are offered them, and to make the best of what doubtless appears to them a bad situation. They have taken an industrial risk by specializing in glass blowing, and it has just happened that they, rather than some other industrial workers, have been hard hit by the development of improved machinery.

To bring our illustrations strictly up to date, we may mention the serious situation which now threatens the earning capacity of those professional musicians who make a living as members of theater orchestras. So great have been the technical improvements in the field of the "talking pictures," that many managers of legitimate and motion-picture theaters have dispensed with orchestras, and are giving their audiences "canned music" provided by the Vitaphone, Movietone, and similar reproducing devices. The concern of the theater musicians is apparent. In an effort to retain their jobs, the 140,000 organized musicians of the United States (through their union, the American Federation of Musicians) are inserting paid advertisements in leading newspapers and magazines, begging the public to insist upon "living" music and to accept no substitutes.

Economic changes, such as those cited, do not necessarily result in strictly permanent unemployment; they may bring about a fairly long season of idleness, followed by the acceptance of other kinds of work which are less remunerative than the old occupa-

tions, but better than none at all. There has recently appeared, however, a new business risk that may well strike terror to the heart of the industrial worker. This is the tendency, which is becoming more and more pronounced, for employers to show a definite preference for younger workers, and, indeed, in some cases, to refuse to engage men who are more than forty years of age. If this practice should become widespread, it would add tremendously to the risks of unemployment which the workers have been able neither to eliminate nor to transfer to others through the medium of insurance.

Risks of Hazardous Occupations.—Though the possibility of enforced idleness constitutes the greatest risk that workers are compelled to bear, yet, if involuntary unemployment should be wiped out completely, there would still remain for industrial employees certain hazards directly connected with their occupations.

We do not know accurately the number of industrial accidents that occur annually in the United States. But it seems probable (in view of estimates that have been made) that we have every year about 25,000 fatal accidents in industry,⁴ some 500,000 that cause a month or more of disability, and perhaps 2,000,000 less serious in nature. Occupational diseases are also more common than is generally known. Workers in paint factories may contract lead poisoning; in textile mills, tuberculosis; and in leather tanning plants, anthrax. Girls who paint luminous watch dials sometimes succumb to radium poisoning, and workers in brass foundries suffer from inhaling zinc fumes.

Tuberculosis claims an especially large number of victims among industrial workers throughout the world. Following is an extract from the report of an official investigation into the high tuberculosis rate among Welsh quarrymen:

While the investigations were confined to one district, the conclusions arrived at apply to the whole of the Welsh slate-bearing areas. It has been thought that the high rate of tuberculosis among the quarrymen of North Wales is mainly due to poor feeding, particularly to excessive tea drinking. The report recognizes diet as having

⁴ A startling illustration of industrial hazard appeared in a statement in the *New York Times* (November 24, 1929) to the effect that the Window Cleaners Union loses almost two per cent of its members each year through accident.

played a part in the causation of the high death rate. But with regard to the slate workers, the problem of prevention of lung disease among them, arising out of their occupation, is the dust problem.

From long contact the clothes of the workers in the sheds are saturated with slate dust. The floors of the sheds are covered with dust, and the ledges and beams even to a height of twenty feet or more from the ground are covered on their upper surfaces with fine dust to a depth of half an inch. Currents of air and vibration from the machinery keep the dust floating in the atmosphere. Quartz formed 35 per cent of the whole, and particles of this substance from 1 to 5 microns in diameter were plentiful. Mica and chlorite formed the bulk of the remainder, mica predominating.⁵

So far as seriousness is concerned, this statement is one that could be duplicated in many countries and many industries. And in most cases we have an abundance of information relative to the measures which, if adopted conscientiously and extensively, would lessen greatly the risks of hazardous occupations. For occupational diseases and accidents can be reduced materially by the installation of fans to carry off dust and fumes; of facilities for changing from street to work clothes, and for washing up thoroughly at lunch time and again at the close of the day, in order to lessen the danger of infection; of safety devices to guard against injury from high-speed machinery, and so on. Through these and similar measures, it would be possible to shorten the long list of dangerous occupations, and reduce the heavy burden of risk that now falls upon the workers. The legal prohibition of the manufacture of phosphorous matches is a sample of what can be done, if only the importance of the issue is once generally realized.

In addition to lessening industrial misfortunes of these kinds, provisions have been made in some instances for insurance against the economic hardships they entail. In some European countries it is obligatory upon employers to provide insurance against loss of time from sickness, though in most cases the employees themselves are required to contribute something toward the payment of the premiums. In the United States most sick benefits are paid through fraternal orders or trade unions. To be of much avail, in

⁵ *New York Times*, September 21, 1927.

connection with occupational diseases, insurance of this kind must be extended to take care of the entire period of disability.

So far as industrial accidents are concerned, the several states of the United States (with the exception of three of four only) have written into their legal codes Workmen's Compensation Acts, which provide for payment by the employer of a weekly benefit over a stated period, when the worker is injured in the line of duty, and of a stipulated amount in case of accidental death. The obligation is frequently handled by employers through the agency of insurance companies. The benefits, it should be added, are usually so small that it may fairly be said that the risks of dangerous occupations, like those of unemployment, are, in America, borne in the main by the workers themselves.

INSURANCE

We have referred so often, in our discussion of business risks, to transferring the hazards to specialists in risk bearing, that it seems desirable to give some little attention to the principles and practice of insurance and speculation.

The Basis of Insurance.—We begin with the statement that risks that are not calculable for individual instances may be estimated with considerable accuracy when a large number of cases is dealt with. Statistics, collected over a long period of years, give a good idea of the probable death rate among the members of a large group. Just which of the million policyholders of an insurance company will die within the year cannot be foretold, but the *number* that will fail to survive can be predicted with surprisingly slight error. It is the business of actuarial experts to estimate *how many* (but not which *particular individuals*) among those insured against risks will suffer from fire, burglary, automobile accidents, and other disasters and, as a consequence, will demand remuneration as agreed upon in the insurance policy.

"Premiums" and "Benefits."—We see, then, that there is safety in numbers, and that, by combining a great many individual risks, the possibility of loss for the individual is converted into a certainty of loss for the group. This certain and predictable loss is divided among the insured on the basis of the amount of

protection each is carrying, and a charge is made to cover administrative costs. The total amount that each policyholder pays is called a "premium," and through the total premiums that are collected the administrative officials are able to pay "benefits" to those upon whom the blow happens to fall. Thus, through the payment of a very small sum, the individual may make monetary provision against many types of hazard. For example, by paying an annual premium of approximately \$20.00, a man thirty-five years of age may make certain that upon his death his beneficiary will receive the sum of \$1,000.

A Reduction in Uncertainty.—Insurance takes many forms and covers a large number of hazards. But in all cases, it should be noted, the insured disposes of the uncertainty by accepting a small, definite loss (the premium payment) in order to relieve himself of a loss which may never come to him, but which, if it should come, would be very burdensome because of its size. Nor does the insurance company itself run any great risk of loss. For if its statistics have been calculated correctly, the receipts from premiums should be adequate to take care of all benefits that must be paid. Indeed, if they should prove to be inadequate, larger premiums will be demanded; as was the case recently in Philadelphia, when rates for automobile insurance advanced sharply because of an increase in the number of automobile accidents among policyholders. It may be said, then, that insurance is a means of reducing *uncertainty*, though it does not necessarily lessen the number of *losses*. Through the use of statistics, and the application of the law of large numbers, that which has been highly uncertain is turned into a fairly sure thing.

Insurance and the Reduction of Loss.—But insurance may, and sometimes does, bring about a positive reduction in losses. For the payment of premiums is irksome to policyholders, and premium payments may be reduced in amount if the hazards insured against are lessened. That they can be lessened in many instances is beyond question. Thus life can be lengthened by proper attention to the laws of health; fire hazard can be reduced through the introduction of sprinkler systems and adequate fire-fighting apparatus; robberies can be lessened by the installation

of burglar alarms and the development of better police protection, and so on.

Indeed, some of our leading authorities on the subject regard the reduction in loss as the most significant service performed by the institution of insurance—important though it is to relieve individuals, through group action, of hazards that they are unable, personally, to assume. Though the transfer of uncertainty to specialists is better than bearing it oneself, the elimination of risk is still more desirable. Since insurance appears to aid in the good work of risk reduction, it is all the more vital that unemployment, sickness, and disability insurance be introduced widely into American industry; for in this way some of the uncertainties that now press heavily upon the workers, and cause concern to conscientious employers as well, might be materially lessened.

CONSTRUCTIVE SPECULATION

We have spoken of "buying futures" and "hedging" as methods which the business man might adopt in protecting himself against price fluctuations in the purchase of materials. These two operations are a part of the larger subject of speculation; and speculation consists of "dealing in things the future prices of which are eminently uncertain."⁶

Produce Exchanges.—We shall confine our attention very largely to speculation as it takes place in the produce exchanges, for it is here that we see most clearly the constructive function that speculation may perform. The most important of these exchanges are those associations of dealers, in large cities, that provide a continuous market for cotton, wheat, sugar, corn, coffee, and other types of commodities. If a commodity is to be handled in an organized market, it must be capable of standardization so that quantities and qualities may be expressed readily; it must be important enough to occupy the attention of many buyers and sellers; and it should, moreover, be liable to considerable fluctuations in price. The two commodities that meet these conditions most fully in this country are wheat and cotton.

The "Futures Contract."—The members of a produce ex-

⁶ Alfred Marshall, *Industry and Trade*, p. 252. London: Macmillan and Co., 1920.

change are interested primarily in buying and selling, for future delivery, on what is known as the "futures contract." "A futures contract may be defined as a contract for the sale of a stipulated amount of a specified grade of some commodity at a fixed price at a future date."⁷

In the great majority of cases, the futures contract does not result in an actual delivery of the commodity which has been sold. These contracts are entered into largely by professional speculators who are interested not in the produce itself, but merely in the profit which they hope to reap through these market transactions. Consequently, when the time for delivery arrives, it is a common procedure to "settle" by paying or receiving (as the case may be) the difference between the contract price and the market price prevailing on the day on which the terms of the contract must be met.

If, then, a seller of wheat futures agreed to deliver on April 1 at \$1.60, and the market price on that date was \$1.50, he would collect from the buyer 10 cents a bushel, this amount representing the profit he would make if he fulfilled the contract and delivered physical wheat. If, on the other hand, wheat were selling at \$1.70 on April 1, the seller would be required to pay to the buyer 10 cents on each bushel contracted for. It may be said, therefore, that most futures transactions are in effect wagers as to whether the price will rise or fall. But in many instances these "bets" are based on careful estimates of extremely able business men, who give their entire time and attention to the study of world conditions of supply and demand, and then back up their deliberate judgments with hard cash.

"Buying Futures" to Avoid Risk.—Our special interest, however, is in the use of speculation as a means of handling business risks. We may take, by way of illustration, the familiar example of the miller of flour who, by buying or selling futures, protects himself against fluctuations in the price of wheat.

Let us suppose that the miller has been asked by a baker to quote in advance on the delivery of 100 barrels of flour each month, over a period of six months. We may assume, further,

⁷ Charles O. Hardy, *Risk and Risk-Bearing*, p. 205. Chicago: University of Chicago Press, 1923.

that the miller's productive capacity is 100 barrels a day, and that he wishes to buy his wheat as he needs it. How, in view of possible changes in the price of wheat, can the miller make a contract, in advance of delivery and at a specified figure, without running considerable risk of loss? (For his raw material, wheat, may have risen in price as he seeks, month by month, to secure the amount required to fulfill his contract.)

The problem would be a difficult one in the absence of a futures market for wheat. But the existence of such a market enables the miller, today, to place orders for wheat to be delivered each month at prices quoted today for future delivery. Thus, the cost of the miller's raw material is definitely known, and he may use this figure as the basis of his quotation to the baker, secure in his knowledge that by speculating (that is, by buying futures in wheat) he has insured himself against possible price fluctuations that are wholly beyond his control. Having shifted a particular hazard to a specialist in risk bearing (a speculator), he is able to give his undivided attention to the task of milling flour, in which he is himself a specialist.

"Hedging" to Avoid Risk.—But the glove may be on the other hand, the miller wishing to manufacture for stock, turning wheat into flour, day by day, in order to keep his employees busy, and to have on hand at all times sufficient flour to meet the needs of his customers. In this way, his production may regularly be a month in advance of sales. But the selling price of flour, when it is finally disposed of, will usually be based on the cost of wheat *at that particular time*, and not upon its cost at the time the wheat was actually purchased. How, under such conditions, can the miller guard against a drop in the price of wheat and a consequent loss in revenue from the sale of his flour? He may do it through the process known as "hedging," which involves the sale, instead of the purchase, of futures.

Let us imagine, for the sake of simplicity, that the miller manufactures every month 10,000 barrels of flour to be sold on the first day of the following month. If five bushels of wheat make a barrel of flour, the miller on January 1 will buy from a dealer in grain 50,000 bushels of wheat at (say) \$1.50, to be milled in the course of the month. At the same time, in order to make a

perfect hedge, he sells in the futures market, for delivery on February 1, 50,000 bushels of wheat at \$1.50. Now, whatever may happen to the price of wheat during the month of January, he will find that his hedging operation has protected him against loss. The transaction of January 1 is as follows:

January 1	January 1
Miller buys 50,000 bushels of physical wheat at \$1.50 per bushel.	Miller sells 50,000 bushels of futures wheat at \$1.50 per bushel.

On February 1, wheat may be selling at \$1.60 per bushel, in which case the following situation exists:

February 1	February 1
[Wheat selling at \$1.60]	
Miller sells flour at a price based on \$1.60 wheat, though his wheat actually cost only \$1.50 per bushel. Hence, he <i>gains</i> 10 cents per bushel, or \$5,000.	Miller delivers at \$1.50 (the contract price) wheat which actually costs him \$1.60; or pays the difference to speculator. Hence, he <i>loses</i> 10 cents per bushel, or \$5,000.

Or wheat may be selling at \$1.40 on February 1 with these results:

February 1	February 1
[Wheat selling at \$1.40]	
Miller sells flour at a price based on \$1.40 wheat, though his wheat actually cost \$1.50 per bushel. Hence, he <i>loses</i> 10 cents per bushel, or \$5,000.	Miller delivers at \$1.50 (the contract price) wheat which he buys on February 1 at \$1.40; or receives the difference from speculator. Hence, he <i>gains</i> 10 cents per bushel, or \$5,000.

This illustration shows that, by hedging, the miller has denied himself the profit which would have been his if, in the absence of a hedge, the price of wheat had advanced. But he has likewise insured himself against a possible decline in the price of wheat which would have entailed a loss. When the miller hedges, therefore, his gains consist of the normal gains to be realized by manufacturing wheat into flour. They are, in a word, precisely as much as they would be if the price of wheat were never-

changing. Indeed, the miller's object in hedging is to render himself immune to any price changes that may take place.

The Social Significance of Speculation.—Whether or not the speculator performs a useful function in the economic world is a question that is often raised. Without attempting to give a detailed answer, it may be said for professional speculators that they shoulder risks which they are better able than others to bear, thus relieving many producers (such as our miller) of burdens which the latter are ill-prepared to carry.

Their operations lead, moreover, to a greater uniformity in both the use and price of a given commodity, and this must be reckoned as a social and economic gain. The grain speculator, for example, learning that crop failures in certain parts of the world will bring a shortage of wheat, immediately seeks to buy contracts for the future delivery of wheat, and his activities raise the price. As a result of his purchases, and those of other speculators, the price of wheat is moderately high over a long period instead of being low for a while and extremely high at a later time.

The rise in price has the further beneficial effect of aiding in the conservation of the available stock of wheat. Were prices to remain low, the consuming public would be unaware of the necessity of economizing, bread would probably continue to be wasted, and something approaching a famine might be experienced before the coming of another harvest. High prices (resulting from the speculator's activities, and passed on to the public by the sellers of bread) serve as danger signals; and thus the physical commodity itself, as well as the price, is spread fairly evenly over the period of shortage. In case the speculators anticipate an unusually large supply, they force down the price through their sales of futures. In this way they encourage the public to consume the article in larger quantities, again spreading its use over the period in question and contributing, also, to price stability.

Stock Speculation.—Speculation in stocks, as practiced on the New York Stock Exchange and other exchanges in this and foreign countries, seems to many to be much less useful socially than speculation in produce. And yet speculation in stocks does provide a "continuous market" for securities and thus makes it

possible for the general public to participate more fully in the ownership of industry. Moreover, it is probable that speculation in stocks does something to prevent violent changes in the prices of securities by anticipating changes in the conditions of a given concern or of business in general.

It cannot be denied, however, that in both stock exchanges and produce exchanges there is considerable dealing that savors of gambling, as well as a good deal of manipulation designed to mislead the unwary. Without attempting to minimize the harm that is chargeable to the organized exchanges, we should recognize the fact that they also confer benefits upon society; and we may leave the subject with the observation of Professor Marshall to the effect that "for the present at least that evil [which is attributable to speculation] has to be taken with the good."

PART THREE DISTRIBUTION

THE DISTRIBUTION OF INCOME: RENT

THE PROCESS OF DISTRIBUTION

WE now enter upon the study of another major division of the science of economics. We have examined at considerable length, first, the *production* of economic goods, and, second, the *process of exchange* in which money and prices play so vital a part in getting the goods into the hands of the final consumer. Our next step is to inquire into the *distribution* (or "apportionment" or "division") of these economic goods among the owners of the agents of production.

The Nature of Distribution.—More than one economist has explained the nature of distribution by imagining a central point to which all members of an economic group come from time to time and deposit in a "goods heap" the commodities and services which they have produced and for which they desire credit. As evidence of his contribution, each producer may be supposed to receive a certificate, which will enable him, at his convenience, to draw from the goods heap commodities and services up to the amount of his deposit. In a great economic area, such as the United States, there would be piled up each year a goods heap amounting in value to some \$90,000,000,000, and presumably there would be withdrawn from this heap every year an equal amount of economic goods.

The Participants in Distribution.—Who is it that takes part in the process of distribution? Obviously those who contribute, directly or indirectly, to the accumulation of commodities and services will expect to participate in the distribution of these economic goods. And to what extent does each producer share in the distribution of these goods, which in a given country may quite properly be called the national income? To the extent,

naturally, of his importance in the task of producing the national income. For each depositor will insist on having as his share of the goods an amount no smaller than would be lost if he withheld his productive efforts. And, if competition exists, there is no reason to suppose that he need take less.

To be sure, the producer will not get in return the exact items that have formed his contribution. For as producer and depositor he is a specialist, placing upon the heap, in all probability, but one kind of economic goods; but as a claimant, cashing in on his certificate of deposit, he sees the situation from the consumer's point of view and demands a great variety of goods. Nevertheless, he will expect, in all cases, to receive *as great value* in commodities and services as he has contributed to the national heap.

The Size of the "Goods Heap."—Our study of production has shown that there are four factors, or agents of production, though each of the four is capable of being divided into some hundreds or thousands of grades. The size of the goods heap, then, depends upon the productive efficiency of land, labor, capital, and business enterprise. If these factors of production are abundant and of high quality, and if they are properly combined and set to work, we expect to see, and do see, a large accumulation of economic goods over a period of time, say, a year. The United States is an outstanding example. If one or more of the productive agents are scarce or of inferior grade, or if they are not used in the proper proportions, the national heap will be small. Italy, with extremely meager natural resources and disproportionate quantity of labor, is a case in point.

But in all industrialized societies the four factors are found at work, each contributing something to production; and in all countries, as a consequence, landlords, laborers, capitalists, and business enterprisers demand their respective shares of the national income in the form of rent, wages, interest, and profits. It is the division of income into shares for the various productive agents that constitutes distribution, as the term is ordinarily employed by economists.

The Relation of Distribution to Price.—In our examination of price determination, we noted the fact that the price of an economic good, in the long run, tends to equal the costs involved

in producing it; and that these costs of production, in turn, consist of the sum total of the prices that must be paid for the use of the various factors employed in the production of the good. These productive factors, though of many types and grades, may be resolved into land, labor, capital, and business enterprise. If we take as a starting point the four agents of production, we arrive at price by simply totaling these payments; and if we begin with price, distribution consists of dividing price into the parts of which it is composed—that is, into the payments demanded by the several factors of production.

We see, then, the close relationship between price and distribution. Indeed, they are (as has often been suggested by economists) but different aspects of the same thing. Price, or the payment that is made for an economic good, is merely the sum of the prices paid for the use of the several productive agents that were employed in producing it—the price of the good and the prices of the agents being determined simultaneously. And it is upon the prices paid for the productive agents that we center our attention in making a study of distribution.

We have seen that the price of a good is determined by the equilibrium of supply and demand, price being set at that figure at which buyers are willing to buy exactly the quantity that sellers stand ready to sell. The payment for a productive agent (that is, the price that will be paid for its use) is determined in precisely the same way. Hence, the share that a productive agent has in the distribution of income depends upon the relation between the supply of and the demand for this agent. The price at which the owners of a given agent are willing to give up the same quantity that enterprisers are willing to buy is the price which will be paid. It is clear, therefore, that the study of distribution is simply a continuation of the study of price determination, and it is pursued (as was true, also, of price) through an examination of the factors affecting supply and demand.

The Concept of Marginal Productivity.—In the analysis of distribution an attempt is made to find an answer to the question, "How are rent, wages, interest, and profits determined; that is, on what basis is income distributed among the owners of the productive agents?" We have already answered this question in

a general way, by suggesting that each contributor to the national heap of goods withdraws from the goods heap an amount of economic goods that is proportional to his importance as a producer. This is the central idea of a popular theory, the Marginal Productivity Theory of Distribution, which states that the share of each of the productive agents is determined by the *marginal productivity* of that agent. In the present analysis we shall not hold to this theory; that is, we shall not suggest that the amount paid for the use of a unit of a productive agent is *determined* by the marginal productivity of the agent. Indeed, we have already said that is always determined by the equilibrium of supply and demand. It will be seen, however, that marginal productivity plays a vital part in affecting distribution *on the side of demand*, and that there is a tendency for price to *equal* marginal productivity. But this is only one side of the story. The theory of distribution is not complete until due recognition has been given to the supply of the productive agent, as well as to demand.

In speaking of "marginal productivity," we shall have reference to the *value* of the marginal product. The "marginal product" is that amount of product which is dependent upon the use of a single unit of a given productive agent. This single unit of any quantity of a productive agent is called the "marginal unit," as will be made clear in the next paragraph.

If, for example, 100 acres of land of a specified grade are used in production, the marginal unit is the last acre to be employed. But the word "last" refers here to *quantity* and not to *time*. All units of land must be thought of as being employed at the same time. The expression "the last unit" (or "the marginal unit") has to do only with the quantity of the productive factor—in the above instance, with the *difference between 99 and 100 acres*. [This, as we shall see shortly, is not the same as the difference between 49 and 50 acres; for it matters greatly, in applying the concept of marginal productivity, whether the marginal unit is one of many units of the factor, or one of few.] Since all acres are (by hypothesis) precisely alike, the marginal acre is *any one* of the 100 acres. And the marginal product of this agent, land, is the quantity of product that is added to the total product through

the use of the marginal acre, assuming that the quantities of the other productive agents remain unchanged.

Marginal Productivity and the Law of Variable Proportions.

—It is important to emphasize the fact that the marginal unit is one unit of a *total quantity* of a given productive agent, for the productivity of the marginal unit of any factor depends upon the number of units that are being used. The productivity of the marginal unit of land when 100 acres are employed is quite a different thing from the productivity of the marginal unit when only 50 acres are used, assuming that labor, capital, and business enterprise are the same in both instances. From the Law of Variable Proportions¹ we learned that all of the factors of production are subject to the principle of diminishing returns; that if progressively larger quantities of any factor (whether it be land, labor, capital, or business ability) are combined with a fixed quantity of the other factors, diminishing returns will eventually set in. Though the total product increases with each addition of the variable factor, the product dependent upon the added unit of the variable factor is smaller than the product dependent upon the preceding unit of the variable factor, once the point of diminishing returns has been reached.

In our earlier treatment of this principle, we remarked that it is often referred to as the Law of Diminishing Productivity. This name is especially appropriate in the present connection for it suggests, and quite properly, that as more and more units of one factor are used, without an increase in the quantities of the other factors, the amount of product added to the total product through the use of each unit of the variable factor diminishes progressively. If, then, 50 acres of land are used in conjunction with a *given quantity* of other factors, the marginal product of land (that is, the amount of product added to the total through the use of the *fiftieth*, or "last," acre) will in all probability be greater than it would have been if 100 acres were used, in which case the marginal product would have been the amount of product added to the total through the use of the *hundredth* acre. We see here the importance of the supply side of our theory of distribution, for the marginal product is smaller when the agent in

¹ See Chapter V.

question is plentiful than when it is scarce. Whether many or few units of the agent in question are employed, it is the marginal productivity (that is, the value of the marginal product of the agent) rather than the product itself with which we are concerned in our discussion of distribution.

Marginal Productivity and Marginal Utility.—Consumers' goods are desired by the purchasers because of the utility that they are capable of yielding. They have the power to gratify directly the desires of human beings. The productive agents—land, labor, capital, and business enterprise—do not yield utility directly, except in rare instances.² Ordinarily, their usefulness depends upon the aid that they give in furthering production. They are desired, therefore, not on their own account, but because it is possible through their agency to bring into existence economic goods that are capable of being enjoyed directly. On this account, it is customary to say that the demand for the agents of production is a *derived demand*, being derived from the utility of the finished goods in the production of which the agents are used.

Finished goods bring a price because they are useful and scarce. The agents of production bring a price because they, too, are useful (in furthering the production of finished goods) and scarce. In the case of a finished good, which is directly useful, we employ the term "utility"; whereas in the case of the productive agent, which is only indirectly useful, we use the word "productivity." The price of a finished good measures the marginal utility of the good, and the price paid for the use of an agent of production measures the marginal productivity of the agent. The enterpriser obviously cannot pay more for the use of a productive agent than the amount realized through the sale of its marginal product. On the other hand (as we noted in Chapter V), "it will be most profitable to add units of each factor up to the point at which the contribution of each unit to the total

² A piece of "land," such as the Grand Canyon of the Colorado, Mt. Rainier, or Luray Caverns, requires no further "production" to make it yield utility. Labor, also, when expended in personal service, is used directly and not indirectly, and is therefore a consumers' good rather than an agent of production. But cases of these kinds are relatively few, for we are living in an age of roundabout production.

product [that is, its marginal productivity] will exactly equal the cost of the unit."

The Demand for and Supply of the Productive Agents.—Since the production of economic goods is dependent upon the use of land, labor, capital, and business ability, and since these agents of production exist in limited quantities, it is possible for those in possession of the agents to obtain payment for their use, under a régime of private property. The amount of payment will depend, in each case, upon the importance of the agent when employed in a productive capacity.

The degree of economic importance, or marginal productivity, of an agent is related to its scarcity, as we have already seen. If it is available in large quantities and the demand is small, it will be poorly paid because it is but slightly useful in production. If it is extremely limited in quantity, and is essential in the making of a good for which the demand is great, it will command a high price. But the price, whether high or low, will bear a direct relationship to the marginal productivity of the agent, and the marginal productivity will depend upon both supply and demand. The marginal utility of oranges is great when oranges are scarce, and small when oranges are plentiful. Similarly, the marginal productivity of a productive agent, such as land or labor, is great or small, depending upon whether the quantity available is relatively scarce or plentiful.

Demand and supply schedules and demand and supply curves may be drawn up and used quite as readily and satisfactorily in ascertaining the price of a productive agent as in determining the price of a finished good. Whether the agent in question is a particular type and grade of land, or labor, or capital, its price is determined by the relationship between the demand for and supply of the agent, that is, by an equilibrium between the supply of and demand for the agent. It is the general conditions of supply and demand that determine which unit is to be the marginal unit, and it is the value of the product of this unit that tends to equal (but does not itself determine) the price paid for the use of every unit of the agent. The principle of marginal productivity explains why enterprisers will pay as much as they

do for a productive agent—that is, it explains the demand side of the equilibrium.

The extent to which a business man will employ a given productive agent is dependent upon the price that he must pay for it, in relation to the price that can be obtained for the additional product which results from the use of the agent. Clearly, the careful enterpriser will not continue to employ any factor of production beyond the "point of most profitable use."³ But, equally clearly, he will not cease to add units of a productive factor so long as he can secure for the additional product which results from their use a price that is more than enough to pay for the extra units.

The Price of the Marginal Unit.—Table I in Chapter V shows the extent to which, in the illustration there given, the enterpriser will employ a particular kind of capital, bone meal, in the production of wheat. With wheat selling at \$1.00 a bushel, and bone meal at 75 cents a unit, he uses up to but not beyond four units; for the fourth unit, which is also the last or marginal unit, in this instance increases the product sufficiently to bring in 80 cents of additional return, whereas the outlay for this unit of capital is 75 cents.

Theoretically, at least, it would be possible to make the units of an agent so small that there could be, and would be, virtual equality between the value added to total product through the use of the marginal unit and the price paid for the marginal unit. For there is no reason to suppose that enterprisers will cease to add units so long as the necessary payment for these units is even slightly less than the price received for the extra product. Hence, units will be added until the equality that we have spoken of has been attained. It is customary, therefore, to say that the price paid for a productive agent is equal to the full value of its marginal product; that is, every unit of the agent will receive as much as every other unit, which is the value of the product of the marginal unit. But whether this amount is high or low will depend upon the general conditions of supply and demand as they relate to this particular productive agent.

³ See Chapter V.

The Price of an Agent in Its Alternative Uses.—Not only will all units of a productive factor receive the same price in a given establishment, and in the same type of industry, but the total quantity of the factor, if it can be used in many branches of economic activity, must be paid for at a uniform rate, no matter by whom or in what manner it happens to be employed. For the principle of opportunity costs brings about an equalization in the unit price of every productive agent that has alternative uses. We saw in our examination of individual prices⁴ that a given grade of agricultural labor, that could be used in either cotton or corn production, would not be available for cotton growers at a lower price than that offered by corn growers, and *vice versa*. Therefore, no enterpriser (whatever his line of production may be) can secure the use of a productive agent at a lower figure than any other enterpriser will pay. But since all enterprisers who use the agent will use more and more units up to the point at which the cost of the final unit is just equal to the value of the additional product, we see that not only is there a uniform price for a productive agent throughout industry, but this price is uniform because there is a uniform marginal productivity for a productive agent throughout industry as a whole.

The Interdependence of the Productive Agents.—If by any mischance we have given the impression that the various agents are productive separately and individually, it is high time that the error were corrected, for it is but seldom true that a productive agent, alone and unaided, creates utilities. In our illustration of wheat-growing we saw that the addition of a fourth unit of bone meal brought an additional product of eight-tenths of a bushel of grain. But it would be wrong to say that the extra unit of fertilizer "produced" the additional wheat. It had a share in the production, to be sure, but so also had the other kinds of capital and the land, labor, and business enterprise that were employed in this agricultural project. Just as it is impossible in the case of joint supply to determine the separate costs of the goods jointly produced, so in production of any kind it is impossible to separate the total product into shares and as-

⁴ See pp. 293, 294.

sign to each of the agents those units of product which each has produced. For the process is, after all, one of joint production, and each agent has had a part in producing each unit of the total product.

What can be done, however, is to ascertain the usefulness of the marginal unit of an agent, by withdrawing a single unit temporarily and noting the loss in total product that results. When we have learned the amount of loss that is caused through the withdrawal of the marginal unit of a productive factor, we know how much can be paid for each unit of the factor, and, moreover, how much *will* be paid for it, under conditions of free competition. [This amount, it may be repeated, is *determined* by general conditions of supply and demand.] Adding together all payments of this kind made to all factors used in producing a good, we get the total costs of production, which, under competition and in the long run, tend to equal the price of the good.

THE RENT OF LAND

We shall now consider, in turn, the four factors of production, and examine in some detail the manner in which the share of the national income that goes to each factor is determined. We take up, first, the share known as "rent," which is the payment that is made for the use of land. Since the supply of land is practically fixed, we shall deal chiefly with the demand side of rent determination.

The Uses of Land in Production.—In general, the demand for land is based upon its usefulness in production. Land may be useful in any of several ways. It may possess the characteristics essential to the production of agricultural crops; it may be rich in mineral deposits, such as coal, iron, or petroleum; or, by reason of a favorable location, it may be suitable for use as a building site. We shall deal first and chiefly with the rent of agricultural land, which does not differ in nature from rent on building sites; and shall later discuss briefly the rent, or royalty, paid for the use of land that is desired for the extraction of minerals.

Let us begin with several assumptions that are contrary to fact, and, having discovered the causes and nature of rent, proceed to

examine such conditions as may readily be observed in everyday life. Our first assumption is that there are no differences in the quality of land (all acres being of precisely the same grade) and that it is available in unlimited quantities. Land under these conditions cannot command a rent, for our hypothesis places it in the category of free goods. Certainly no one will pay a price for a good that can be had for nothing, as is the case with land that exists in unlimited quantities.

Rent on Land of Uniform Quality.—But, narrowing our assumption slightly, we may suppose that the land is of uniform quality; that it is so restricted in area that every acre has come under private ownership; and, furthermore, that it is being cultivated up to, but not beyond, the point of diminishing returns. Under circumstances such as these, rent need not be paid. But if any part of this land, say, an acre, should be withheld from use, or if there should appear in the market an additional unit of capital and labor seeking profitable employment, the situation would be materially changed.

Let us suppose that an acre of land is withdrawn from use, though an increase in capital and labor would bring about a similar result. Land will now be scarce in relation to capital and labor, it will be cultivated beyond the point of diminishing returns, and the owners of land will be in a position to demand and receive rent. This statement is based upon the principle of diminishing productivity. In explaining the situation, let us make the further assumptions that the land is being used for the growing of wheat; that each of the identical acres, when cultivated with one unit of capital and labor, yields 25 bushels of grain; and that (owing to the workings of diminishing returns) a second unit of these agents added to a single acre will raise the yield of that acre to 45 bushels, increasing its output by 20 bushels.

Rent must now be paid for the use of this land, since the withdrawal of an acre from production will reduce the effectiveness of the capital and labor that have been employed on this acre. For, in order to find profitable employment, this capital and labor must be applied to an acre which is already being cultivated up to the point of diminishing returns. Thus employed, the

agents that have been transferred suffer a loss in productivity. Whereas they had produced 25 bushels of wheat with the aid of the acre of land on which they were originally used, their present productivity, as is indicated by the increased yield of the acre on which they are now used, is but 20 bushels. The withdrawal of an acre involves, therefore, a loss of five bushels. A tenant farmer using an acre of this land can afford to pay a rental up to the amount of five bushels, and would probably make the payment rather than give up the acre. Strictly speaking, it is a matter of indifference to the tenant whether, on the one hand, he retains this acre, paying five bushels for its use and having left 20 bushels for his labor and capital; or, on the other hand, he uses this labor and capital on another acre that he is already cultivating, and gets for their use the amount which they add to the total product of that acre (namely, 20 bushels).

The acre about which we have been talking is the marginal acre of land, which may be any one acre of the entire quantity; and the five bushels that are lost through the withdrawal of the acre constitute the marginal product, since they measure the productivity of the marginal acre. But we must remember that it is the equilibrium of supply and demand that decides which acre will be the marginal acre, and which consequently decides whether the marginal productivity of land is to be great or small. Because this is true, it follows (assuming perfect competition) that the rent of land will be equal to its marginal productivity. Hence, by ascertaining the marginal productivity of a given type of land, we may learn, also, the amount of rent that it will command. However, the forces back of the determination of rent are, as we have observed, the demand for the land (based upon its marginal productivity) and the supply of land (which is practically fixed).

Rent for Land of Different Grades.—But we must give up the assumption of land of uniform quality, and consider the phenomenon of land as it manifests itself in the world of reality. Land varies greatly in fertility and location. In discussing agricultural land we are interested mainly in the fertility of the soil and its suitability in producing crops; consequently, we omit from our present discussion whatever advantage this agricultural

land may have in the way of a favorable location. In the growing of wheat or other grain, it is found that some acres are extremely productive, some are good, some fair, some poor, and still others must be accounted very poor. Figure 46 pictures the situation graphically, with the solid lines indicating the number of bushels of wheat that can be produced on land of different qualities, with the use of identical quantities of capital and labor. The

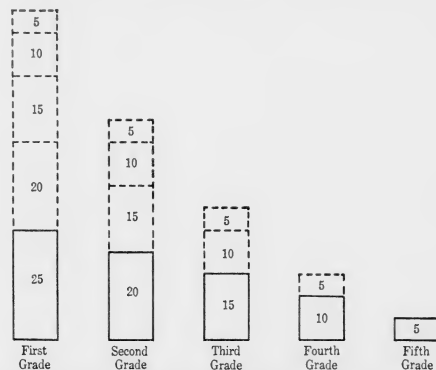


Fig. 46: THE CULTIVATION OF LAND OF DIFFERENT GRADES: The diagram shows the principle of diminishing returns at work on each grade of land; "intensive" and "extensive" margins; and the equalization of "marginal products" of identical units of capital and labor when applied to land of different qualities.

dotted lines show the effects of additional applications of these factors. In each case the quantity of land is a single acre, and capital and labor are added (one unit at a time) in units of uniform size which include unvarying quantities of both of these factors.

When land of different qualities is available for cultivation, as in a newly settled region, it may be expected that the best land will be utilized first, and that of inferior quality later. This situation arises from the exercise of common sense on the part

of the settlers; for the acres of best grade will produce, with a given expenditure of capital and labor, a larger product than can be had from less fertile acres. Moreover, the best land will be cultivated intensively up to the point of diminishing returns, before there is any temptation to produce on even slightly inferior land. For up to this point, a unit of capital and labor can be used more productively on first-grade land than on land of other grades.

In Figure 46, we assume that diminishing returns set in immediately after the application of the first unit of capital and labor to each of the several acres of land of different grades. The workings of diminishing returns are shown graphically, through the use of areas marked off with dotted lines; the progressively smaller additions to total product which result from the use of additional units of capital and labor on a single acre of land are indicated by progressively smaller areas enclosed by dotted lines. If one unit of capital and labor is used on an acre of first-grade land, the product is 25 bushels, and further units of capital and labor will increase the total product as follows: The second unit will add 20 bushels; the third unit, 15 bushels; the fourth unit, 10 bushels; and the fifth unit, five bushels.

But long before the fifth unit of capital and labor is applied to the best land, it will doubtless occur to farmers that it might be more profitable to call into use some of the less fertile land, instead of depending wholly upon the cultivation of a limited quantity of first-grade land. We may reasonably assume that, through experimentation, it has been ascertained that if only two units of capital and labor are available they may be used with equally good results in two ways. For, as is shown in Figure 46, both units could be applied to an acre of first-grade land, or one unit could be used on first-grade land and the other on second-grade land; and in each instance the result would be 45 bushels of product. This is true because a first unit of capital and labor applied to second-grade land is exactly as productive as a second unit applied to first-grade land.

Holding, for the moment, to the assumption that there are but

two units of capital and labor to be had, we see, by reference to Figure 46, that only one of the two can be utilized in such manner as to bring a product of 25 bushels. The second unit, if added to the first and applied to the one acre of first-grade land, will bring only 20 bushels of additional product, because this acre will then be cultivated beyond the point of diminishing returns. And if this second unit is used on the acre of second-grade land, it will again bring in a product of only 20 bushels, owing to the fact that second-grade land is less fertile than land of first quality. If three units of capital and labor, instead of two, were available, it would be most advantageous to use two units on the best acre and the third on the acre of second-grade land. If there were six units of capital and labor, they would presumably be disposed of (as is shown in Figure 46) by using three units on first-grade, two units on second-grade, and one unit on third-grade land.

Figure 46 indicates the way in which we might expect fifteen units of capital and labor to be utilized on five acres of land of different kinds. It will be noted that capital and labor are applied in such manner that the final application on each grade of land brings a return exactly equal to the return from the final application on all other grades of land. This is necessarily the case, for if a unit of capital and labor were less productive in one place than in another, it would be shifted promptly to the more favorable position. The result is an equalization of marginal products, as was explained earlier in the present chapter. The last unit of capital and labor to be applied to each grade of land may be thought of as a marginal unit, and the extra product that is forthcoming because of its use is the marginal product. In the illustration it is shown that the marginal product of a unit of capital and labor is five bushels, and that this marginal product is the same on all grades of land.

But for the present we are seeking the marginal product of land, and not of capital and labor. Our method is to withdraw one unit (say, an acre) of land from use, and note the extent to which production declines. This amount is the marginal product of the acre of land, and the value of this product is the share of income which may be secured for its use. We shall now

undertake to determine the marginal product of third-grade land, the productivity of which is indicated in the third column of the diagram. To accomplish this result, we must drop the fiction that there is but one acre of this kind of land in use, and grant the existence and utilization of many such acres. Let us suppose that there are 1,000 acres of third-grade land in use. Every one of these acres is being cultivated, of course, just as intensively as every other acre. This means that each acre yields 30 bushels of product when three units of capital and labor are applied to it. The removal of one acre from production might be expected, therefore, to lessen the total product by 30 bushels (see the third column of Figure 46); and so it would, if the capital and labor previously used on this acre were allowed to lie idle. But they will naturally be employed somewhere, if they can in this way be made to bring in a return; and it is reasonable to suppose that they will be applied to those acres of third-grade land that are still under cultivation.

How productive will they be in this new capacity? The question cannot be answered with absolute exactness, but we can arrive at a figure that is substantially correct. If 1,000 acres of third-grade land have been cultivated in the past, with a yield of 30 bushels per acre, the total product has been 30,000 bushels. If one acre is withdrawn, the total drops to 29,970 bushels. But the three units of capital and labor formerly used on the acre now withdrawn from use can be applied to the remaining 999 acres. The marginal product of a unit of capital and labor, when applied on 1,000 acres of third-grade land, was five bushels. With the same number of units applied to 999 acres, the cultivation is slightly—but only very slightly—more intensive. The marginal product will remain, therefore, *approximately* five bushels per unit of capital and labor. Thus the three units, when spread over the 999 acres, will add about 15 bushels to the total product, bringing the production for the 999 acres up to 29,985 bushels.

Hence, the withdrawal of an acre of third-grade land is accompanied by loss of 15 bushels. Fifteen bushels, therefore, constitute the marginal product of third-grade land, and the value of these fifteen bushels is the amount that owners of such land can exact from tenants in the form of rent. By going through

a similar process of calculation, it is possible to discover the marginal product, and consequently the rent, of land of any kind.

Intensive and Extensive Margins of Cultivation.—The diagram illustrates very well the intensive and extensive cultivation of land. More and more units of capital and labor are used on the superior grades of land, but eventually a point is reached at which the cost of the unit of capital and labor is just equal to the value of the extra product that results from its use. This point is the “intensive margin” of cultivation; and it will be observed that there is an intensive margin for every grade of land. There is also an “extensive margin” of cultivation, but it is to be found on only one grade of land—the poorest grade that it pays to bring under cultivation, which is that grade on which it is possible to produce just sufficient goods to cover the payments that must be made for labor and capital, but no more.

“Marginal” or “No-Rent” Land.—The poorest land in use is commonly called “marginal” land. It is also known as “no-rent” land, because it yields so slight a product that it would not be cultivated if it could not be obtained rent-free. The product to be had from marginal land reimburses the farmer for his expenditure of capital and labor, but that is all. Fifth-grade land in Figure 46 is marginal, or no-rent, land; and its total product per acre is five bushels. The diagram shows that a unit of capital and labor, such as is being used on fifth-grade land, cannot be obtained for less than five bushels. Consequently, an attempt to exact a rental for the use of fifth-grade land would be doomed to failure, since it would result merely in the withdrawal of capital and labor from such land, and its application elsewhere.

Rent as a Surplus.—Another method of determining rent is by calculating the productivity of capital and labor on the superior grades of land, and comparing the results with the productivity of the same capital and labor when used on marginal land. Turning again to Figure 46, we see that five units of capital and labor employed on an acre of first-grade land bring a total product of 75 bushels. The same amount of capital and labor used on fifth-grade, or marginal, land would produce only 25 bushels. The difference, 50 bushels, represents the superior productivity

of first-grade land when compared with no-rent land. It is a surplus resulting from the use of superior land, and represents the amount that can be charged by the owner of first-grade land, in the form of rent, for the use of one of his acres. Since the landlord can charge as much as this, he assuredly will not charge less; nor can he charge more, for an attempt to do so would result in driving tenants from first-grade to marginal land, where each unit of capital and labor would have a return of five bushels.

The three units of capital and labor which, in our illustration, are used on third-grade land would produce 15 bushels on marginal, or no-rent, land. They now produce 30 bushels. The difference, 15 bushels, is the rental of an acre of third-grade land, when figured as a "differential surplus," which is attributable to its productive superiority over marginal land. But 15 bushels were also the amount of rent that we arrived at when we computed the marginal product of third-grade land. The result, then, is the same, whichever method of calculation is employed.

Agricultural Land, Building Sites, Mineral Land.—In dealing with agricultural land, we have naturally emphasized the fertility of the soil as being chiefly responsible for the productivity of the land, and consequently for the rent that can be had for its use. But the location of land is not without significance even in the case of agricultural areas, and location is of prime importance in rendering urban land "productive." The part played by location in affecting the rent of farming land may be seen by comparing the rental of a truck farm near a great city, such as New York or Philadelphia, with that of a similar piece of land in a region remote from dense population. The ability to get the "truck" to the consumer promptly and cheaply may sometimes be quite as important as an unusual yield per acre.

But in the case of urban land, fertility counts for little or nothing, and location is all-important. Of course, if the land is to be used for residences, certain qualities of the land (such as elevation, slope, and natural beauty) may be considered. These items, indeed, will be charged for by the landlord. But they are not so vital in determining the rent of residential sites as are the social and economic standing of the neighbors; the proximity

to schools, churches, theaters, and other social centers; and adequate transportation facilities. These matters, it will be observed, relate to location, and not to the quality of the land itself.

Location is of even greater significance when land is to be used for business purposes. A theatrical manager wants his playhouse to be in the theatrical district; a manufacturer oftentimes selects a building site because it is near raw materials and labor supply; and a merchant builds his store, if possible, on a plot of land that is passed by thousands of persons daily. The Wanamaker store in Philadelphia, for example, stands on a piece of land that is valued at some \$25,000,000. This high valuation, and the high rent that must be paid for the use of this lot, are not attributable to any natural qualities of the land, but are due to the excellence of its location for purposes of merchandising, and to the scarcity of land so admirably situated.

Rent paid for the use of mining land is usually called "royalty," and is in reality a payment made for the natural product that is extracted and will never be returned to the land. This is quite a different thing from the use of land for farming and building purposes, for the tenant farmer is expected to maintain the fertility of the soil year after year, and the use of a plot of ground as a building site does not wear out the land. The mine operator, however, is continually removing from the land a valuable commodity, with the result that its usefulness as mineral land will eventually be wholly destroyed. The farmer and manufacturer pay a rent of so much per acre or front foot, but the mining enterpriser pays a royalty of so much per ton of coal or barrel of petroleum taken from the ground. Indeed, he may be said to be actually buying the coal mine or oil field by slow degrees, since it will cease to have value as mineral land once he has brought to the surface the coal or oil for which he is paying a rent, or royalty.

Productivity, the Source of All Land Income.—In one very important particular, the payments made for these three kinds of land are identical. That is, these payments represent, in each instance, the marginal productivity of the land for the use of which they are made; and they are high or low, depending upon whether the marginal productivity of the particular kind of land

being considered is great or small. Farms that are unusually fertile command a high rent; building sites that are admirably located are paid for at fancy prices; and mines that contain high-grade ores bring in to their owners large royalties from those who are anxious to exploit these mineral resources.

We insisted, earlier in the present chapter, that the price paid for the use of a productive agent, like that paid for an economic good of any kind, is determined by the general conditions of supply and demand. In our discussion of rent we have had little to say about supply, but have dealt chiefly with demand, as it is affected by marginal productivity. There has been slight need to emphasize supply in analyzing the rent of land, since, in a practical sense, the supply of any given kind of land is fixed. Though rent is paid only because of the productivity of land, and though (if we assume perfect competition) the rent of a particular type of land cannot be higher or lower than its marginal productivity, it is not quite correct to say that marginal productivity determines the rent that will be paid. For marginal productivity itself depends upon the quantity of land that is available, being high if land is scarce and low if it is plentiful. The truth is that the supply of and demand for land of this kind determine its rent, with marginal productivity exerting a powerful influence on the demand side of the problem. Supply, being fixed, does not here play so active a part as it does in the determination of wages and interest.

Two Concepts of Rent.—We have defined rent as a payment made for the use of land; and we have had in mind constantly the fact that land, from the economist's point of view, consists of wealth that has been created without the aid of man.

It is difficult, however, to find any land in use on which man has not made some "improvements." Building sites have obviously been improved, in the economic sense, when houses, stores, or factories have been erected. A piece of agricultural land, likewise, is almost always "improved" in a way which makes it hard to distinguish "land" from "capital." For agricultural land is usually fenced, it is sometimes drained or irrigated, and its usefulness is frequently dependent in part upon the construction of a house and barn. When a farm of this kind is leased to a tenant,

just how much of the return that goes to the landlord can properly be termed "rent"? The answer depends upon whether one is viewing the situation as a business man or an economist.

From the business man's point of view, the whole return would be regarded as rent, since he thinks of the entire farm as an investment bringing him in an annual income. But the economist finds it desirable, though sometimes difficult, to separate the return that is attributable to the improvements from that which results from the productivity of land in the narrower economic sense. The latter he calls rent; the former is interest, since it is a payment made for the use of capital. It is not always feasible to draw a sharp line of demarcation between land and capital, but it is usually possible to estimate approximately how much of the total income from improved land should be credited to the capital investment; and once this is known it is an easy matter, of course, to figure the amount that should go to the owner of land, since this amount is the difference between the total income and the portion that must be paid in the form of interest.

Differences between Land and Capital.—It is not feasible, in a book of this kind, to dwell at length upon the differences between land and capital. But it will be worth our while to note two important points of difference. In the first place, land is, for all practical purposes, fixed in quantity, whereas the amount of capital may be greatly increased. The area of usable land is, it is true, added to slightly from time to time by drainage, irrigation, the building of dikes, and similar projects. The increase, however, is of relatively little importance. But the capital of the world increases by leaps and bounds. The growth of population creates new and larger demands for land, and, since the quantity available remains fixed, the price (or rent) mounts rapidly. The demand for capital also increases with the expansion of population, but the supply of capital keeps pace with the demand, and as a consequence the price paid for its use (interest) changes but little.

The second distinction between these two productive agents has to do with the fact that, if society so decreed, the payment of rent to individual landlords could be abolished without affecting in the slightest the amount of land available for pro-

daction; the abolition of interest, however, would reduce the accumulation of capital and thus interfere with the making of goods. If, for example, the people of a country should decide to appropriate all land rent through a system of taxation, there is no reason to suppose that the land would not continue to be used as in the past. But if interest were not paid to owners of capital, consumption would increase and savings would fall off; and as a result the industrial machine would presently be inadequately equipped. We shall discuss in a later chapter the usefulness of interest in encouraging the building up of a large quantity of capital.

Explicit and Implicit Rent.—Nothing has been said thus far, in our discussion of rent, about the landowner who does not lease his land to another but uses it himself. It is correct, in a case of this kind, to say that the land yields a rent, but this is known as *implicit rent*, whereas we have been talking chiefly about *explicit rent*. Explicit rent is the rent paid by a tenant to a landlord. It is paid because of the productivity of land which the owner permits the tenant to use. The amount of a rent is a measure of the usefulness, or productivity, of the land. But this land, if used by the owner himself, would still be useful. If it is agricultural land, then the productivity which the owner, as a farmer, enjoys through the use of the land, he as a farmer should pay to himself as landlord. The actual payment may not take place, and yet in a situation of this kind rent exists just as truly as under a landlord-tenant arrangement. Therefore, the owner of land who uses his land himself receives a rent—in this case implicit rent; the landlord who leases his land to a tenant receives rent, which is called explicit rent.

The Value of Land.—It is often desirable, for purposes of sale or taxation, to know the value of a piece of land. Land is wanted, of course, for the income which it brings to the owner. This income is easily determined if it takes the form of explicit rent, for then it consists of the money payment made by the tenant to the landlord. And if the owner is using his land himself, the rent may be ascertained by comparing his land with similar land on which rent is actually being collected. When the amount of rent is known, the value, or price, of the land may

easily be calculated by "capitalizing" the rent at the prevailing rate of interest.

If, for example, the interest rate is five per cent, and a piece of land is renting for \$1,000 a year, its value must be twenty times \$1,000, or \$20,000. If \$20,000 were placed out at five per cent interest, the return would be \$1,000 a year. Hence, any commodity, such as a piece of land, that brings in a yearly income of \$1,000 is worth \$20,000, when the interest rate is five per cent. If the rate were only four per cent, the value of a piece of land yielding \$1,000 a year would be \$25,000; and if the interest rate were ten per cent, its value would be only \$10,000. The value of land, then, depends upon the income which it will bring to its owner, instead of determining, as some persons think, the amount of rent that the owner is able to exact from a person using the land.

Distribution is the apportionment or division, among the owners of the agents of production, of the economic goods produced by society.

Marginal product is that amount of product which is dependent upon the use of a single unit of a given productive agent, employed in connection with quantities of other factors that remain unchanged.

Marginal productivity is the value of the marginal product.

Rent is a payment made for the use of land.

Marginal land, or *no-rent land*, is land upon which can be produced goods which have a value just sufficient to cover the necessary payments for labor and capital used in their production.

THE DISTRIBUTION OF INCOME: WAGES

LABOR is human energy expended for the purpose of acquiring income. Whether the labor is of high or low quality, whether it is very scarce or fairly plentiful, and whether it brings a large or small income, it is still labor if it meets the requirements of this general definition. It is sometimes useful, however, to distinguish between various classes of labor. The most significant distinction is that which sets apart from other kinds of labor that particular type which has for its function the promotion or conduct (or both) of economic activities. Those individuals who see business opportunities, who get together the land, labor, and capital necessary for their operation, and those who own or direct business enterprises after they have been launched, are known as enterprisers; and the human energy which they expend for the purpose of acquiring income is called "business enterprise" or "business ability."

We shall give some attention to this particular type of labor in our discussion of profits in a later chapter. It is possible, of course, for a person to be both laborer and enterpriser, receiving wages for his labor and profits because of his ownership of the business. The small-scale farmer provides an illustration of this combination of two productive factors in one individual.

Money Wages and Real Wages.—We have already discussed the difference between money income and real income, noting the fact that money income consists of the number of dollars, or other monetary units, that one receives over a period of time; while real income is made up of the commodities and services that one is enabled to enjoy through the expenditure of money income. The distinction between money wages and real wages is very similar. Money wages are a form of money income, and consist of the money payments made to laborers in

return for their contribution to production; real wages are the economic goods that the workers secure when they spend their money wages.

Real wages, of course, are vastly more important to the worker than money wages. The latter are sometimes very deceptive. For money wages may seem to be high, until translated into real wages through the purchase of commodities and services; when it may be discovered that in reality they are very low, because the purchasing power of money has been greatly reduced by a rise in the price level. On the other hand, real wages may be higher than is suggested by the size of the money wage, owing to the fact that prices in general are unusually low.

It is important, in the consideration of wage data, that the observer give attention to actual earnings and not merely to wage rates. Moreover, the earnings should relate to more than a few weeks, or even months, if one is to get an accurate idea of the adequacy of wages in "seasonal" occupations, such as mining, in which there are sometimes weeks, or months, of enforced idleness every year. The rates per hour, per day, or per unit of product do not in such instances tell the whole story. But if money wages actually earned over a fairly long period (say, a year) are known, and an index number of purchasing power is available, it is possible to interpret wages in terms of commodities and services, and in this way to ascertain whether the wage earner's standard of living is rising or falling. The use of actual earnings makes it possible, moreover, to compare the economic status of workers in one occupation with that of workers in other occupations. When, therefore, we speak of a "rate of wages," we shall have in mind the average yearly real wages of labor.

THE DETERMINATION OF WAGES

Wages Under Simple Conditions of Production.—Labor is used at times in combination with very small quantities of land and capital; and, again, it is employed with huge quantities of these productive agents. The importance of labor as a factor of production is most apparent when it is seen at work on free land, operating with little or no capital. Let us consider the produc-

tivity and the wages of laborers engaged in gathering wild berries, catching fish, trapping small game, or making crude pottery. These activities might easily be conducted on free land, some few miles distant from a settled community or railway junction, at which point purchasers for the goods could be found. Under these conditions, the workers would have no rent to pay. Moreover, the expense for fishing tackle, traps, and similar equipment would be so slight that it would cut a small figure; and it may, therefore, safely be disregarded in the present discussion.

In circumstances such as these, whatever the producer of these goods can secure for his commodities in the way of price will go to him alone; and this amount, whether large or small, will consist only of wages, for there is no payment to be made for the use of land, and the cost of the capital used, per unit for salable commodity, is infinitesimal. In the economic sense, commodities produced in so simple a manner are the product of labor alone, and the amount that the commodities command when sold measures the productive importance of that labor. This amount, as is true of the price paid for any kind of consumers' goods, measures also the utility of the marginal unit of the good to the marginal purchaser.

Under these conditions, it would be difficult to disprove the statement that the laborer receives for his efforts the full value of the economic importance of his labor. But the size of his reward for this labor does not necessarily bear any relation to the amount of energy he has exerted. Payment is made not on the basis of effort expended, but on the basis of the supply of and demand for the product. With no need to pay any productive agent except labor, the supply of the commodity will be limited only by the unpleasantness or disutility of expending effort in production. The demand for the commodity will depend upon its utility. The price of the good will be determined by an equilibrium between the disutility of the labor and the utility of the good. This amount will, under the conditions outlined above, go to labor.

It is worth while, in this connection, to emphasize the fact that if the withdrawal of a unit of labor involves the loss of

economic goods that are much desired, the importance of that labor is reckoned at a high rate, and a large payment will be made to avoid its withdrawal from production. Contrariwise, only a small payment will be made for the use of a unit of labor, the withdrawal of which means the loss of goods that are not highly esteemed. When, then, berries and fish are offered in such large quantities that the loss of the marginal units will not be keenly felt, the marginal utility of these goods is said to be small, the economic importance of laborers producing them is small, and berry-pickers and fishermen receive low prices for their products. Since the total payments received for these simply-produced commodities go to labor in the form of wages, it can easily be seen that the worker receives high wages when his labor results in goods that are very scarce and much wanted, whereas he can command only low wages when the goods he is producing are quite plentiful in relation to the quantity desired.

Wages Under More Usual Conditions of Production.—Conditions of production are usually much more complicated than has been suggested in the illustration that we have just used. Actual examples of production in which the total product goes to laborers in the form of wages are to be found ordinarily only in sparsely settled areas where primitive methods of production are still current. For a dense population means almost certainly a charge for the use of land; and production, unless it is of a primitive, direct type, requires the use of capital, and this in turn is not to be had without payment.

Table XIX gives some hypothetical figures which serve to show how wages are measured in an economic society in which rent is charged for the use of land. The problem of interest will be reserved for discussion in the following chapter.

In this table we assume that the amount of capital used is small, and that the little which is needed is supplied by the laborer himself. A farm laborer, for example, might be expected to provide himself with a hoe with which to do a part of his work, though some units of labor would probably be employed without the use of any capital whatsoever. If potatoes are being grown, one unit of labor (a day's work of a given grade) with a hoe might suffice, so far as capital is concerned. If a second

TABLE XIX: TOTAL CROP AND MARGINAL PRODUCT OF LABOR

[Varying quantities of labor are used on one-acre plots of land of three different grades]

Units of Labor (in days of work)	First-grade Land		Second-grade Land		Third-grade Land	
	Total Product (Bu.)	Marginal Product (Bu.)	Total Product (Bu.)	Marginal Product (Bu.)	Total Product (Bu.)	Marginal Product (Bu.)
1	25		20		15	
2	45	20	35	15	25	10
3	60	15	45	10	30	5
4	70	10	50	5		
5	75	5				

unit of labor is used, it could consist of unaided hand work, such as weed-pulling. A third unit might be expended in picking stones, a fourth in killing potato bugs, and a fifth in a second hand weeding later in the season. Capital, therefore, plays so small a part in the present example that we shall not consider it at all, but shall take it for granted that the only payments to be made are for the use of land and labor. All of our labor units, of course, are exactly alike, each consisting of a day's work of a given grade.

Because of the workings of diminishing returns, the productive importance of labor declines as more and more units of labor are used with a given quantity of land (or capital). The productive importance of a unit may be determined at any time by removing one unit temporarily, noting the loss in total product that results, and ascertaining the value of the amount lost. The illustration in Table XIX suggests that land is so scarce that it is cultivated intensively, with considerable labor being used on each acre of land. The greater the number of labor units used (assuming that the other productive agents remain unchanged in quantity), the smaller the marginal productivity of labor. Labor will continue to be applied up to the point at which its cost is equal to the value of its marginal product.

Quality and Productivity.—The table shows clearly that a small marginal product does not necessarily result from inferiority of the labor unit. In many cases, it is attributable to

the inferiority or scarcity of the *other factors* of production. A third unit of labor expended on first-grade land has, according to our table, a marginal product of 15 bushels; but if used on second-grade land its marginal product is only 10 bushels; and if applied to third-grade land it has a marginal product of but 5 bushels. In each of these three instances the labor units are identical, but in the case of second-grade and third-grade land they have inferior productive agents to work with, and consequently their marginal product is small. The effect would be similar if, in a manufacturing enterprise, the capital used (machinery and tools) differed in quality; for those labor units that were compelled to work with poor capital would be less productive than the labor units that were coupled with high-grade, modern capital.

Scarcity and Productivity.—Moreover, if land and capital are uniform in quality and are of very high grade, but are so limited in quantity that they must be used sparingly while labor is employed in large quantities, the marginal product of labor again declines as more and more units of labor are used. We see, then, that when the quantity of labor of a given kind is large in relation to the quantities of the other factors, labor will have but small marginal product. In Table XIX the marginal product of labor is only five bushels, *because* labor is so plentiful, there being 15 units available for use on these three acres of land. If there were only nine units of labor to be had, the marginal product of labor would be 10 bushels, though the labor would not be of any better quality than when it had a marginal product of 5 bushels. It is evident, then, that the quantity of labor affects greatly the wage that each unit can command, since labor's marginal product depends largely upon the quantity of labor that is available for use if the quantities of the other agents of production remain unchanged.

Uniformity and Differences in Wages.—The productivity of the last unit of labor to be employed will measure its remuneration, and all labor units of this type and grade will receive the same wage, in accordance with the Law of One Price. The equalization of the marginal product of a given grade of labor throughout the entire market is shown in the "Marginal Prod-

uct" columns of Table XIX, and also in Figure 46 in the preceding chapter (though the marginal product in this diagram is not that of labor alone, but of labor and capital combined).

There are many types and grades of labor, as there are many kinds of land, and it is often possible to find numerous types of labor at work at one time on the making of a single commodity. In a modern manufacturing plant, such as a clothing factory, there are dozens of kinds of workers, and probably almost as many different wage rates. In a later section of the present chapter, we shall discuss differences in wages from the point of view of the supply of the various types and grades of labor. For the present, we may repeat the observation that the wage paid for a unit of labor, of whatever type or grade, tends to approximate the full value of the marginal product of that unit of labor; and that the marginal product of labor may be ascertained by withdrawing from production a single unit of the labor in question, and finding out how much of the total product is lost through its removal.

The "Current Rate" of Wages.—It would not be correct to assume that the individual business man calculates in this way the wages of all of his workers. He does not. Instead, he pays the current rates of wages for labor of various kinds—rates that are determined by conditions of supply and demand as they relate to the many kinds of labor used in industry. But these current rates represent, also, the consensus of opinion of business men in general as to the marginal productivity (or "worth in production") of labor. We saw, in the preceding chapter, that it pays the enterpriser to employ a productive agent up to the point at which the value of the additional product resulting from the use of a unit of the agent is just sufficient to cover the cost of the unit. Consequently, business men are continually experimenting and estimating, trying out various combinations of various agents. Thus they learn a great deal about the marginal productivity of the several agents, and by their competitive bidding they establish rates of wages which may be said to approximate the estimated value of labor's marginal product.

Competition in Wage Determination.—We do not mean to suggest that an enterpriser would be unwilling to pay less for

a unit of labor than the full value of its marginal product. But free competition among employers tends to make it impossible to do so. If the value of the marginal product of a unit of labor is \$1.00, an employer would doubtless be delighted to pay only 80 cents in wages and reap 20 cents in profit. But in a situation such as this, some other employer, noting the large margin of profit and considering that 15 cents in profit is better than none at all, will almost certainly offer a higher wage, say, 85 cents, and still another will bid 90 cents, and so on until the profit is wholly, or at least virtually, wiped out. So long as an enterpriser can gain anything at all by taking on additional workers, it is reasonable to suppose that he will do so. This is particularly true in an industrial era in which small profits and a large volume of business is the watchword of many enterprisers.

Supply and Demand in Wage Determination.—We have surely said enough to indicate that the demand for labor is closely related to the marginal productivity of labor. Labor is wanted by enterprisers because it is productive, and wages cannot be far above or far below the value of the marginal product. But the marginal productivity of labor, like that of land, depends upon the equilibrium of supply and demand, for the marginal productivity, and wage, of a certain kind of labor will be low, if that kind of labor is very plentiful; and the marginal productivity, and wage, will be high, if the labor is very scarce.

Now the quantity of labor of a given type is not fixed, as the quantity of land is fixed. That is to say, the quantity of land is permanently fixed (except for quite unimportant changes), but the quantity of labor may be increased or decreased over a considerable period of time. It does take considerable time, however, to effect an appreciable change in the labor supply. The quantity of labor in general depends upon the size of the population. The quantity of labor of a particular kind depends upon the number of persons who are able and willing to perform the required work. This number, in turn, is affected by native ability, the cost of training, the mobility of labor, and several other factors that we shall examine later in the present chapter.

The Subsistence Theory of Wages.—We wish, at this point, to deal with an important influence upon the supply of labor;

namely, the insistence by workers of a given kind upon an established standard of living, or even upon a rising standard. Since labor cannot be had without provision being made for the maintenance of human beings, there are certain minimum expenses for food, clothing, and shelter which must be met if a supply of labor is to be available. According to a theory of wages known as the "Subsistence Theory," which was once popular among economists, wages tend to be fixed at that figure which will provide the worker with a bare subsistence for himself and his dependents. The presumption is that if the wage is more than sufficient for subsistence, workers will have larger and larger families, the labor supply will be increased, the marginal productivity of labor will decline, and wages, as a consequence, will fall until they have reached the subsistence level.

The Influence of Established Standards of Living.—An examination of present-day wages shows that the theory that subsistence regulates the supply of labor is unsound. Not only do workers, in a great many instances, command wages that provide for themselves and their families much more than a minimum of the necessities of life, but there is good reason to believe that the size of the family is often deliberately regulated in order that a particular standard of living may be maintained. Once a family has become accustomed to a certain standard, it is likely either to hold tenaciously to that standard or to attempt to raise it to a still higher level.

A Summary of Wage Determination.—It appears clear, therefore, that standards of living do a great deal to affect wages, through their influence upon population and hence upon the labor supply. This fact does not in any way invalidate our statement that the demand for labor is based upon marginal productivity. The truth is, of course, that both the supply of labor and the demand for labor are responsible for determining the wages in a particular occupation.

The standard of living, as we have said, is simply one of several factors that affect the supply of labor and consequently affect wages. The influence is indirect, to be sure, but it is none the less effective on that account. Insistence upon a certain standard of living limits the size of the population, and this and other

factors affect the quantity of a given kind of labor. On the side of demand, marginal productivity is of the utmost importance, since the value of the marginal product limits the amount that enterprisers can pay for labor. Thus, the economic importance of a unit of labor is measured by the marginal productivity of that type of labor; and marginal productivity, as we have seen, is high or low, depending upon the quantity of labor. While it is true that enterprisers cannot pay more for labor than the value of the marginal product, it is equally true that competition among enterprisers for the services of workers tends to keep the wage up to approximately this amount.

DIFFERENCES IN WAGES

We may now note some variations in wages that occur between workers of the same type in different countries, and between those engaging in different occupations in the same geographical area.

Wages in Different Countries.—There does not appear to be any tendency toward a general level of wages, in the sense of an equalization in the wages paid to those engaged in different occupations. For reasons which we shall discuss presently, wages in some occupations are low and those in others are high; and there is some evidence that these wage differences are increasing rather than diminishing. However, there is such a thing as a wage level in one region being higher than the wage level of another region. For example, real wages are considerably higher in the United States than in England. This does not mean that the worst-paid workers in this country have larger incomes than the best-paid in England; but it does mean that, trade for trade, American labor enjoys higher real wages than British labor.

In both instances the wages tend to approximate the marginal productivity of labor. But the greater marginal productivity of American labor, it must be remembered, is not necessarily an indication of greater ability or a larger expenditure of energy on the part of the workers of this country. It merely means that, with conditions as they are, the withdrawal of an American

laborer from production means a greater economic loss than the withdrawal of a British laborer engaged in a similar line of work.¹ In general, when there is a great abundance of land and capital that can be combined with each available unit of labor, wages will be high; when labor is plentiful, and land and capital are relatively scarce, wages will be low. This statement provides the chief explanation of America's superiority in wages.

Competition Among Laborers in Different Regions.—Since wages in general are higher in the United States than in other countries, we might expect to find a continuous stream of workers leaving those countries and migrating to America, to take advantage of the greater economic opportunities that this newer region has to offer. Our statistics of immigration show that a movement of this kind has been taking place for many decades. At certain times more than a million immigrants have come annually to this country, and this influx has doubtless done something in the way of equalizing wages between this and other countries.

But there are obstacles to mobility of labor, and therefore to competition between workers of different countries. One barrier to immigration into the United States is the stringent legislation that has been adopted of recent years, by reason of which the number of foreign immigrants admitted annually to this country is now limited to 150,000. This is a very effective way of lessening competition and thus establishing a relatively permanent difference between wages in this country and other countries. But in addition to this rather new form of interference with world competition among wage earners, there are other forces which tend to keep human beings in those parts of the world in which they have been born and reared. Among the deterrents to mobility of labor are the love of native land, the disinclination to leave relatives and friends, the cost involved in moving one's self and family to a distant country, and the element of uncertainty that "makes us rather bear those ills we have than fly to others that we know not of."

Even within a single country, such as the United States, there is much less movement on the part of labor than one might ex-

¹ Some specific reasons for wage differences of this kind are mentioned on pp. 356, 357.

pect to see; and as a consequence there are sometimes very considerable differences between wages in the same trades in two or more states. For example, the wage rate for carpenters, in Atlanta, in 1928, was 80 cents an hour; in Boston, \$1.25; and in New York City, \$1.50.² But it must always be remembered, in comparing money wages, that the cost of living also varies as between cities; and, moreover, that terms designating trades (such as "carpenter," "machinist," and so on) may be interpreted differently in different parts of the country.

Wages in Different Groups and Occupations.—Differences such as those just noted should make us wary of attempting to speak with exactness about differences in real wages. However, we have sufficient data of a reliable nature to enable us to make certain observations without running any great risk of inaccuracy. We know, for example, that some types of "laborers" are paid handsomely, while others receive a relatively small wage. Without making any claims to exactness, we may suggest the following classifications:

1. *Common Manual Laborers.* These are workers whose contribution to production results chiefly from the expenditure of physical strength. No special training is necessary, and the work is free from responsibility. The wages are usually low and decline rapidly after middle age is passed.
2. *Semi-Skilled Workers.* In this group we include the operatives of semi-automatic machines, whose task is merely that of machine-tending; also, clerical workers filling thoroughly routine jobs. In neither case is a high grade of ability demanded, nor is there a long period of training to be gone through. The pay may be slightly higher than that of common laborers, or it may at times be lower. But the worker does not depend upon physical strength for the performance of his task, and is able to carry on at a more advanced age.
3. *Skilled Workers.* In this field of activity both native ability and training play a part. Here we find skilled craftsmen, such as machinists, carpenters, plumbers, electricians; high-

² *History of Wages in the United States from Colonial Times to 1928*, Bulletin No. 499, United States Bureau of Labor Statistics, pp. 165-167. Washington: Government Printing Office, October, 1929.

grade clerical workers, such as bookkeepers, expert stenographers, and so on; grade-school teachers; and other types of workers whose duties involve the assumption of some responsibility and entail a considerable period of training before proficiency is attained. We may include in this group those who operate small businesses, such as corner grocery stores, small restaurants, shoe-repair shops, and the like. Workers in this class command comfortable, but not high, incomes.

4. *Professional Men and Business Managers.* This group includes lawyers, physicians, accountants, and other professional men whose success hinges usually upon the possession of considerable native ability and an extended course of training. Salesmen of high grade, such as the better class of those selling insurance and securities, may well be included. Here, also, belong many of our business managers. The members of this group, in general, have incomes that enable them to buy high standards of living.
5. *"Captains of Industry."* This term is used to designate those who are outstanding leaders in the economic world, and who, by reason of their unique abilities, are able to secure phenomenally high wages. In this class are the organizers and directors of "big business," "wizards of finance," and business managers who are more than ordinarily capable. Here, also, by reason of their exceptionally large wages, belong some of our famous stars of the stage and screen, champion pugilists, and an occasional lawyer, playwright, and novelist.

Non-Competing Wage Groups.—This is admittedly a rough and ready classification, but it will serve to illustrate a situation that is responsible for many and great differences in wages. Wage classes such as are here described are often called "non-competing groups," for the reason that the members of one group are seldom in a position to bid against the members of other groups in the struggle for economic success. It requires no argument to show that common manual laborers do not compete with great financiers. It is less clear, perhaps, that members of Group No. 1 are unlikely to bid for jobs wanted by those in

Group No. 2; but in the main there is little competition between any two of the five groups.

Occasionally, manual laborers may stray from Group No. 1, and, getting into Group No. 2 and being capable of doing semi-skilled work, bid against members of the second group, and thus bring down wages slightly; and semi-skilled workers from Group No. 2, having gone through a course of training, may offer some competition to skilled craftsmen in Group No. 3. This sort of thing may take place, once in a while, between members of any two groups, but such instances are comparatively rare. It is safe to say that there is but little movement of workers from group to group. The tendency seems to be for workers to "stay put," once they get into a particular wage class. The obstacles that must be surmounted if one is to move into a higher class are very real. They have to do with both native ability and training.

Let us suppose, for example, that a skilled worker wishes to move from Group No. 3 to Group No. 4. He might be an excellent barber or bookkeeper, and yet be wholly incapable of becoming a physician or accountant because he is lacking in native ability. And even if his natural endowments were such as to make the move feasible, there would still remain the question of securing the requisite training. When a man has established himself in any one of the groups, it is probable that he has also shouldered certain responsibilities, such as the support of a family, that prevent his giving up a sure, fairly satisfactory income, while pursuing the training necessary for admission to a higher wage group.

Permanent Stratification of Groups.—We know that it is not entirely impossible for workers, once settled in a group, to rise to another group higher up the wage scale; but the difficulties are so great that moves of this kind are unusual. But what about the children of these workers? Is it not possible that they may properly aspire to membership in a higher economic group? The answer, as before, is that it is possible, but not probable, that a boy will advance from his father's wage class into one paying a larger income. The difficulties, again, are related to natural capacity and environmental influences. We cannot be sure that the son will start life with greater native endowments than his

father. But even if he does, there is the troublous problem of securing training for the higher grade of work. He may, it is true, enjoy greater educational advantages than his father has had; but then, again, he may not.

What one does in the way of securing an education depends, probably more often than not, upon the environment in which one is situated. Environmental influences are scarcely calculated, in the low-wage groups, to spur one on to great deeds. The son of a manual laborer, though he has in him the making of a skilled electrician, a great lawyer, or a merchant prince, is unlikely to receive encouragement from his immediate family and associates, to set forth upon one of these careers. Indeed, it is probable that he will never learn of his inborn capacity for greater economic achievement; that he will promptly get used to the standard of living of his father's wage class, and that, when he reaches man's estate, he will accept a job at "good wages" and continue to hold this job, or a similar one, throughout his working life. There is no way of knowing how much human talent goes to waste from lack of discovery or development, but there can be little doubt that the losses of this kind are enormous.³

These are some of the hindrances to a free movement between the various wage groups that provide economic society with the productive agent that we call labor. Because there is no competition worth mentioning between these groups (though there may be a good deal of rivalry for jobs within a given group), wages may be high in one group and low in another, as we have already suggested. Whether they are high or low will depend upon the supply of and demand for labor of the various kinds. High wages are based on the scarcity of labor, and low wages on its abundance. For example, the success of members of Groups No. 4 and No. 5 in securing high incomes is due primarily to the limitation of numbers in these fortunate groups. If captains of industry were plentiful instead of scarce, they would receive much lower wages than at present; but, as we have just explained, they are free from competition of workers outside their own group. So long as these various groups are separated one

³ This point is well made in J. A. Hobson, *Work and Wealth*, pp. 50, 51.

from another, with little opportunity for workers to move from group to group, we shall continue to have wage classes.

Wage Differences Within Non-Competing Groups.—There are wage differences, also, between the various occupations within a given wage group, though differences of this kind are not so extensive as those which exist between the so-called non-competing wage groups. In Group No. 3, for example, are skilled workers of many types, and there are differences in the wages of these various craft workers. To a large degree these differences are permanent in nature, being attributable to relatively slight differences in natural abilities or environmental conditions, or both. Wages, as we have seen, are determined on the basis of the demand for and supply of labor. If, then, one type of skilled worker commands a higher wage than another type, we should expect to find the explanation in a scarcity of the better-paid craftsmen.

Occupations that pay a high wage ordinarily, in the long run, draw workers from occupations that are paying low wages, so that these differences tend to disappear under conditions of perfect competition. However, the number of workers able to qualify for the better-paid jobs is affected by natural ability, the encouragement or discouragement received from relatives and friends, costs of training, and the like. The consequence is that competition is interfered with. Hence, we often have within a group some persistent wage differences, similar in kind to the wage differences between non-competing wage groups, but of much less significance when expressed in dollars and cents.

Seasonal Occupations and Cost of Training.—Some occupational wage differences are more apparent than real. For example, they may represent differences in *wage rates* rather than in yearly earnings. The wages of miners, clothing workers, and actors may appear to be high on the basis of hourly or weekly earnings, but are not so attractive when it is known that these occupations are seasonal in character, sometimes providing only thirty or forty weeks of work out of the fifty-two. It may seem that a plumber receives unduly large wages; but he is forced, in order to qualify for his task, to serve a long apprenticeship at extremely

low wages, and the high income ultimately received is, in part at least, a payment for these years of apprenticeship.

Indeed, whenever considerable expense is incurred in connection with the development of skill in a given trade, workers will demand reimbursement for these outlays, or compensation for loss of wages during apprenticeship, in the form of incomes higher than those received in occupations which one may enter without making a sacrifice for training. If it were found that extra large wages were not forthcoming in the trades involving extensive training, fewer and yet fewer workers would enter those trades, the number of workers available for such work would decline, and wages would rise. Hence, we see the significance of supply as a factor in determining wages.

Psychic Income in Attractive Callings.—It is frequently said of teachers and of members of certain other professions that, in view of the time and money that they expend for professional training, they are very poorly paid. A teacher of economics can scarcely be expected to discourage the spread of ideas of this kind; and yet, it should be stated in all fairness that teachers' salaries are not so low as at first sight they appear to be, for teachers receive a considerable income, wholly apart from financial remuneration.

The college teacher, on whom so much sympathy is wasted, may not receive a large money wage, but he enjoys what is, to many teachers, even more important than a high monetary return. His hours of actual teaching are few; his vacations are long, and, if necessity presses too hard upon him, they can be converted into cold cash; he has leisure for self-development, the stimulus provided by association with fellow teachers in various fields of learning, and the satisfaction of contributing something to the intellectual life of his students. Advantages such as these, which make a particular occupation attractive, are often described in a word as "psychic income."

Psychic income, though not measurable in terms of money, is often quite as acceptable as money income. Military leaders are paid largely in fame and titles; actors in applause; public officials in prestige; and scientists in the satisfaction of having increased the sum total of human knowledge. Ordinarily, of course, one's

material needs must be reasonably well provided for before one is in a fit position to enjoy psychic income.

Hazardous and Disagreeable Occupations.—Some occupations, then, bring rather small money payment, because they present features so attractive that high wage payments are unnecessary. Other jobs, because they involve working at dangerous tasks, command wages that sometimes appear to be disproportionate to the skill demanded. Structural steel workers, steeple jacks, and others who engage in hazardous and spectacular work are not uncommonly paid higher wages than those equally skilled whose occupations are less dangerous. The spectacular element is worth emphasizing, for there are many occupations that collect a heavy toll in accidents and industrial disease and yet offer to workers no extra pay by way of compensation for the risks that they take. A worker who runs a risk of sudden death in following his occupation stands more chance of being paid for the extra risk than does the worker whose job results in slow, but almost certain, death through industrial poisoning.

It is said by some writers that workers will refuse to take jobs that are hazardous or especially disagreeable, without the incentive of unusually high wages. This statement, if true at all, is true only to a very limited extent. Certainly, it has yet to be proved that industrial accidents and industrial disease are more common among the well-paid than among those of smaller incomes. It appears, rather, that the reverse is true; that most of the dangerous and disagreeable tasks in our modern economic society are performed by persons who lack bargaining power, and who, rather than be without work, accept whatever wages and working conditions are offered them. It is certainly correct to say that low wages and dangerous or disagreeable work often go together.

Wages are a payment made for the use of labor.

Money wages are wages expressed in terms of money.

Real wages are wages expressed in terms of economic goods.

THE DISTRIBUTION OF INCOME: INTEREST

CAPITAL AND INTEREST

INTEREST is a payment made for the use of capital, as rent and wages are payments for the use of land and labor, respectively. Capital is produced goods intended for use in further production. Buildings, machines, tools, and other material goods that have been produced by man and are destined to play a part in the production of other goods, are capital. They are sometimes labeled "instruments of production" and, again, "capital goods." These terms are preferred by some writers as being expressive of the concrete nature of capital; but if only we keep in mind the definition that we have used throughout our study of economics, the word "capital" is equally meaningful, and it possesses the advantage of greater conciseness.

Capital Expressed in Monetary Terms.—It is often convenient to speak of capital in monetary terms. A business man, for example, may refer to the fact that he has capital to the amount of \$500,000 tied up in his enterprise. The economist, also, finds it desirable at times to employ a monetary expression when talking about capital. But it should always be remembered that back of the money concept is a goods concept, and that, though capital may properly be expressed in dollars and cents for the sake of convenience, it consists none the less of produced goods that are to be used in further production.

The Productivity of Capital.—One of the questions to be answered in connection with the use of capital relates to the ability of the user to pay to the owner of capital a premium for its use. Why, we may ask, can interest be paid? What is there about capital that enables an enterpriser to return to the owner of capital not only the amount originally borrowed—that is, the

principal—but an additional amount known as interest? Where does the borrower get the six per cent, or eight per cent, or ten per cent, that he pays to the lender of capital, over and above the amount of the original loan?

The answer lies in the productivity of capital or, more correctly, in the greater productivity of labor when aided by capital as against its productivity when not so aided. Our study of the roundabout process of production showed that the indirect method of making goods—that is, the method involving the use of capital—is more productive than the direct method. Indeed, labor without any capital whatsoever is scarcely productive at all. We noted in Chapter IV that of two economic groups, one employing little capital and the other much, the latter would have the greater chance, by far, of enjoying large quantities of consumers' goods. The point that we are anxious to make perfectly clear is that interest *can be paid* because the use of capital adds greatly to the effectiveness of labor as it works with land.

The Accumulation of Capital.—A stock of capital is built up through abstinence from consumption on the part of those who have incomes that are more than sufficient to provide them with the necessities of life. In using the word "abstinence" we have no thought of suggesting sacrifice or self-denial, though doubtless much saving takes place at the cost of lowered standards of living. Capital that is accumulated without sacrifice commands just as much interest as that which, in the same market, is got together only through great self-denial. In either case, however, the "capitalist" abstains from present consumption, and as a result of his abstinence an addition is made to the capital stock of the community.

Capital, then, is accumulated through saving. When a man with a \$10,000 income sets aside, in the form of savings, 10 per cent of this amount, he becomes a capitalist. He has, in effect, voted for the manufacture of \$1,000 worth of machinery in place of the production of a like amount of consumers' goods. It matters not at all, so far as the accumulation of capital is concerned, whether he lends directly to a business enterpriser or puts his thousand dollars into the keeping of a banker. In either case, it is almost certain to be used in the production of more or less

durable capital—"goods-making machines"—which, because of the advantages of the roundabout process, will increase the productivity of the industrial system.

The Conversion of Savings into Capital Goods.—Dollars, of course, do not make capital goods; nor, for that matter, do they make consumers' goods. But dollars represent purchasing power, and the business man who controls a quantity of money is able to determine whether the land, labor, and capital that he purchases shall be used for the production of capital goods or consumers' goods. His decision will be based, naturally, upon the extent of the demand for these two types of wealth. Consequently, those who receive incomes are voting, month by month and year by year, either for or against the accumulation of capital. If they buy consumers' goods up to the full amount of their incomes, they create an effective demand for this type of commodities, and consumers' goods, and not capital, will be produced. In this way they vote against capital accumulation.

If, on the other hand, they deposit a part of their incomes in banks, or lend it directly to business enterprisers, they are, in the main, registering effective votes in favor of more capital. [It is possible, of course, that some small part of such savings will be used for the purchase of consumers' goods.] If the result of their action is a decrease in the immediate demand for consumers' goods, funds are thus rendered available so that business men who need more machinery, or better machinery, are enabled, by borrowing from the savers or the banks in which the savers have deposited their surplus, to add to their equipment and thus to increase their efficiency and productivity. The net result, in the long run, is the production of more consumers' goods at lower prices.¹

THE RATE OF NET INTEREST

The rate of interest, like that of rent and wages, may be resolved into a problem of value, and the determination of the

¹ "To save in the ordinary modern sense is virtually to buy producers' goods rather than consumers' goods. One may, it is true, deposit his savings in a savings bank. In that case he entrusts some one else with the work of investing it, so that he invests it, that is buys producers' goods with it, indirectly instead of directly."—T. N. Carver, *Essays in Social Justice*, p. 223.

interest rate dealt with in precisely the same way as the determination of the price of any individual commodity. For capital, as we have seen, consists of savings, and the price paid for the use of capital depends upon the relationship between the demand for and the supply of savings.

The Demand for Savings.—Savings are desired by some persons in order that they may buy consumers' goods, and by others for the purchase of machinery and other equipment that will aid them in making their productive efforts more effective. Whenever consumers' goods are sold on credit, as is nowadays the case with houses, automobiles, pianos, clothing and a host of other articles, a demand for savings is created for *consumption* purposes. Whenever enterprisers sell bonds and shares of stock, or secure loans from bankers or private individuals, with the thought of enlarging their plants or buying more or better equipment, there is set up a new demand for savings, but in this case for *production* purposes.

Savings Desired by Consumers.—The rate of interest that consumers will be willing to pay for the use of savings depends upon the utility which they expect to enjoy through the expenditure of the money that they borrow. If it were necessary to borrow for the purpose of an essential and urgent surgical operation, probably the borrower would, if necessary, pay an exceedingly high rate rather than run the risk of delay. If, however, it were a question of paying a very high rate of interest or doing without an automobile or radio set, it is conceivable that the potential borrower would regard the rate of interest as too high and would refuse to borrow for this purpose. The would-be consumer will decide to borrow and buy a commodity now, or to do without it for the present, ordinarily on the basis of the estimated utility of the desired economic good, in relation to the estimated disutility of paying interest on and eventually returning the savings that must be borrowed if the good is to be secured at once.

Savings Desired by Producers.—Producers who desire to borrow savings go through a similar process of reasoning, but in their case the chief consideration is the usefulness of the savings when expended for productive equipment. Most savings, it may be observed, are employed in productive undertakings, and are

not loaned out for consumption purposes. A new machine is needed; it will cost so much; this means that a loan must be secured, and a loan is a demand for savings. What rate of interest will the enterpriser pay for the use of these savings? The answer is that he will pay any amount that is not greater than the marginal productivity of the piece of machinery that the savings will buy.

The Marginal Productivity of Capital.—For the principle of marginal productivity applies to the demand for capital, as well

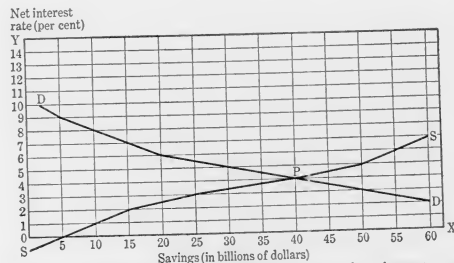


FIG. 47: THE DETERMINATION OF NET INTEREST: The rate of net interest, or pure interest (sometimes called the "time-preference rate"), is that rate which must be paid in order to overcome the marginal saver's preference for present goods as compared with future goods. The diagram shows clearly that the rate of net interest is a matter of price determination.

as the demand for land and labor. No one will pay more for the use of a unit of capital (that is, for the use of the savings necessary to buy this unit of capital) than the unit may be expected to contribute to his total receipts by reason of its marginal productivity. On the other hand, the enterpriser will be inclined to use more and more units of capital in his business, just so long as a unit can be had for a price that is less than the amount obtainable for the additional product attributable to the unit. The marginal productivity of capital may be ascertained by the now familiar method of removing a unit temporarily and noting the loss in total product that results.

Capital, when thought of as units of savings, is a homogeneous commodity, and consequently the determination of the interest rate may be illustrated with the usual value diagram. In Figure 47, the demand and supply curves relate to the demand for and the supply of savings. The demand curve, DD, shows the prices (or interest rates) at which various quantities of savings will be borrowed by those who need either consumers' goods or capital. The slope of the curve (downward and to the right) indicates that small quantities of savings will be taken at high interest rates if high rates must be paid, while appreciably larger quantities will be borrowed if they are available at much lower figures. There is no way of distinguishing, in the diagram, between borrowings for consumption and borrowings for production. But whether the borrowers are consumers or producers, and whether their needs are great or small, all will be required, on the basis of the Law of One Price, to pay the same rate for the use of savings, that is, to pay the same rate of net interest. (As will be shown later, though there are differences in gross interest rates, there is a strong tendency toward uniformity in the rate of net interest.)

The Supply of Savings.—The demand curve for savings shows that the lower the interest rate the greater will be the volume of savings that people are willing to borrow. But the supply curve, SS, is similar to the cost curve in price determination under conditions of increasing costs, for it shows that the quantity of savings that will be available for borrowers depends upon the rate of interest that is offered. If a very low rate is offered, the quantity of savings accumulated and lent out will be small, but the quantity will increase as borrowers bid higher and higher prices for savings. The figure indicates that savers will be induced to part temporarily with \$10,000,000,000 of savings at a net interest rate of one per cent; with \$25,000,000,000 at a rate of three per cent; with \$40,000,000,000 at a rate of four per cent; and so on.

Savings of the Wealthy.—The quantity of savings that will be available for borrowers is closely related to the practice of abstinence from consumption on the part of those who receive and control incomes. The extent to which abstinence from con-

sumption is practiced depends, in large part, upon whether saving involves sacrifice; and if so, upon the degree of genuine self-denial that is entailed in the postponement of consumption. There are in the United States several hundred persons whose individual annual incomes amount to \$1,000,000 or more. It would seem clear that these persons could save some part of their incomes without depriving themselves of any of the necessities of life, and probably without denying themselves any consumers' goods that they may desire.

The Possibility of Negative Interest.—To those whose incomes run in the millions, or even hundreds of thousands, there is little need to offer the inducement of interest. It is probable that these persons save almost automatically, failing to spend the whole of their incomes simply because all of their economic wants are satisfied long before their total incomes have been exhausted. Indeed, there are some few very wealthy persons whose annual receipts are so great, and whose savings are therefore so large, that, if they were unable to lend out their savings at interest, they would allow others to use them without charge, if only a safe return of the principal were guaranteed. Or they might even be induced to pay business men a small amount to take and use their savings, so that they (the owners) could be relieved of the worry and expense of storing and protecting the unspent portion of their income. The supply curve in Figure 47 suggests that, in the hypothetical situation there pictured, \$5,000,000,000 worth of savings belong to persons with enormous incomes, and would be available to borrowers even though no interest were paid.

Middle-Class Savings.—There are others who, though their incomes are not so huge, are yet so fortunate as to enjoy annual receipts from which savings can be made without affecting seriously their standards of living. A business man or professional man with a salary of \$15,000, \$10,000, or even \$5,000 a year, usually finds it possible to lay aside a part of his income year by year, postponing consumption until some future time when his earning power may have declined or stopped entirely. Some of this saving may be motivated by foresight, pure and simple, and might take place without the offer of interest for

the use of the savings. But it is quite possible that, in such cases, the payment of interest acts as an incentive, causing the saver to set aside a larger part of his income than would be saved in the absence of the inducement offered by interest.

On this point, however, we cannot speak with assurance; for it is held by some that there are savers who have in mind the accumulation of a definite sum, say, \$100,000, by a given time; and that savers of this kind would be compelled, in order to reach their goal, to save a larger amount each year if there were no interest than is necessary when interest is paid. Five thousand dollars a year for twenty years would provide the saver with \$100,000 if interest were not paid, but a much smaller sum saved annually would total \$100,000 in twenty years if the savings were loaned out at interest compounded annually. There is a possibility, then, that the payment of interest may sometimes decrease, rather than increase, the savings of those who receive annually more than they need spend for purposes of consumption.

Savings of the Poor.—When we consider those groups of wage earners whose earnings are scarcely sufficient to buy a comfort standard of living, we find that the urge to spend for immediate consumption is very strong, and is unlikely to be resisted unless great inducements are offered in the way of high interest rates. It is reasonable to suppose that persons with small incomes are the least willing of all to save, and will refuse to save unless the premium offered for the use of their savings is large. Figure 47 shows that so large an amount as \$60,000,000,000 of savings can be had only if those who are reluctant to save are offered seven per cent interest in order to overcome their resistance. Of course, if any savers are paid seven per cent, all savers will demand this high rate of return from those to whom they lend.

The Time-Preference Theory of the Supply of Capital.—Our discussion thus far has shown that some persons, because of their very large incomes, can save without difficulty, while others whose incomes are quite small are able to save only at the cost of inconvenience, or even deprivation. We have no thoroughly reliable data relating to the income groups from which the huge

annual volume of savings in this country is recruited, but we may hazard a guess that the capital accumulation from year to year is largely the result of saving on the part of those who could spend their entire incomes without great difficulty, and who would enjoy thoroughly the consumers' goods that their savings would buy, but who are impelled, for various reasons, to refrain from spending up to the full limit of their incomes. One of these reasons is the desire to provide now for future needs. But there are good grounds for believing that, for most persons, the future weighs less heavily than the present. The admonition, "Take no thought for the morrow," may not be observed to the letter; but there are certainly many individuals to whom the present appears to be much more important than the future.

The Reluctance to Postpone Consumption.—When, therefore, a person is asked to postpone consumption until some future time, as he must do if he lends his savings to another, he is likely to question the desirability of the postponement. He will want to know why he should surrender (say) \$100 in purchasing power today for the promise of \$100 in purchasing power a year from now. There is a chance, first of all, that the Grim Reaper will come along and cut him down before the loan is repaid. Or his income may be increasing year by year, so that the \$100 will be less important a year hence than at present. Or, again, he may wish to attend a presidential inauguration or a World's Fair which, once past, cannot be witnessed again for some years.

We have already noted several reasons why future goods might appear to be more desirable than present goods. It seems, however, that most persons would rather have a dollar today than a dollar in the future. The desire for things present rather than things to come is the basis of the theory of "time-preference," which is frequently advanced as an explanation of the interest rate. Referring again to Figure 47, we see that \$5,000,000,000 are saved by some persons who have exceedingly large incomes or by others who are unusually provident. The supply curve shows that this amount could be had by borrowers even without the payment of interest. But in order to call forth further savings, a premium must be paid to overcome the prevailing tendency to spend rather than save.

The Rate of "Time-Preference."—This premium is called the "time-preference rate," and the size of the premium is believed to measure the saver's preference for present goods as compared with future goods. For some persons the preference is slight and may be overcome by the payment of a very low rate of interest, say, one per cent. But if large quantities of capital are needed, requiring considerable saving on the part of those who *could* readily spend but need not spend their entire incomes, it would be necessary to increase the incentive. Some persons will save at two per cent, but not at one per cent; others at three per cent, but not at two per cent; and so on. The supply curve in Figure 47, showing the prices (in the form of interest rates) at which various amounts will be saved and loaned, illustrates graphically the time-preference theory.

We have emphasized more than once the importance of the marginal unit in connection with price determination. We have seen that the price paid for each and every unit of a good is the same as that paid for the marginal unit—which is the unit that the marginal buyer is just induced to purchase at the price asked. This is the case, even though some buyers would pay more rather than go without the good, as is shown by the demand curve. Necessarily, then, the price *received* for each and every unit of a good is the same as that received for the marginal unit—which is the unit that the marginal seller is just induced to sell at the price offered. Again, this is the case, despite the fact that some sellers would take less rather than miss a sale. The supply curve indicates the truth of this statement.

Marginal Time-Preference, Marginal Utility, and Marginal Productivity.—The demand for and supply of savings bring about a similar situation. At some point or other there will be an equilibrium of supply and demand. The interest rate at this point will be such that the volume of savings that borrowers are willing to take will equal exactly the volume that lenders are willing to offer. In the diagram, the equilibrium of supply and demand takes place at the point P, the amount of savings borrowed is \$40,000,000,000, and the interest rate is four per cent. Four per cent is the time-preference rate of the marginal saver. It is the premium that must be paid to overcome his reluctance

to save, and presumably it measures his greater desire for present goods as compared with future goods. According to the time-preference theory, this marginal saver would spend instead of saving, if offered a smaller inducement than four per cent interest. So much for the supply side of the problem.

Four per cent is the measure, on the demand side, of the greater utility of present goods as compared with future goods, on the part of the marginal borrower who uses the loan for purposes of consumption. Four per cent represents, moreover, on the side of demand, the anticipated marginal productivity of the capital that can be bought with these savings, as estimated by the borrowers who use their loans for productive purposes. Certainly, the borrowers who are producers will not pay four per cent interest unless they expect, through the use of the additional capital, to secure an extra product that will at least pay the interest charge. Nor will they cease to add units of capital to their business enterprises, so long as the interest charge is smaller than the value of the additional product realized through the use of the capital on which interest is paid. This means that the producers will continue to borrow capital up to the point at which the value of the marginal product is equal to the cost of the marginal unit of capital (or savings). The net interest rate, therefore, is determined by an equilibrium of the demand for and supply of capital. This equilibrium is established at the point at which the marginal productivity of capital coincides with the marginal rate of time-preference for savings.

Savings Unrelated to Time-Preference.—The time-preference theory of interest is sometimes attacked on the ground that much saving would take place in present-day society without the payment of a premium to induce the savers to refrain from present consumption. We have already referred to saving by the rich and by those intent upon safeguarding old age. To savings of these kinds, which are not dependent upon the inducement of interest, may be added those which are accumulated through public taxation and the reinvestment of corporate earnings. When a government taxes its people for the construction of public works, saving takes place without the payment of interest. Similarly, when the directors of a business corporation decide to use past

earnings for an enlargement of plant, there is, again, enforced saving which does not involve the payment of interest as an inducement.

Importance of the Marginal Saver.—But unless sufficient savings are accumulated by such methods, it will be necessary to call upon voluntary savers to provide a part (and probably a large part) of the total supply. These savers will demand and receive interest, and the rate of interest will be measured by the premium that is necessary to call forth a given quantity of savings. If but little capital is to be accumulated, it will be very largely the result of saving on the part of the well-to-do, the marginal saver will experience but slight inconvenience, and the rate of time-preference will be low. But if huge quantities of capital are to be amassed, it is likely that the marginal saver will be a person of very modest means, that the sacrifice involved in the limitation of consumption will be great, and that he will save only if the time-preference rate is high. In general, then, a small quantity of savings can be had at a low interest charge, and a larger volume will be forthcoming only if the interest rate is raised.

Gross Interest and Net Interest.—The rate of net interest, which is the interest rate that we have been discussing thus far, is the price that would be paid for the use of savings if there were no costs involved in collecting and lending out these savings to others, and if, further, there were absolute certainty of the safe return of all loans. Net interest, as we have seen, tends to be uniform throughout a given market, since the rate paid for every unit of savings must equal, under perfect competition, the rate paid for the marginal unit. However, it is a matter of common knowledge that some business men pay higher rates of interest than others for borrowed capital. But we are speaking now of *gross interest*, and not *net interest*.

Charges for Administering Loans.—Gross interest consists of net interest, plus a charge for handling the loan in question and a further charge for taking care of whatever risk may be involved. Bankers, who spend their time and effort in collecting surpluses from savers and lending them out to business men, cannot be expected to render this service for nothing. Conse-

quently, even though there were not the slightest danger of the borrower failing to return his loan when due, the rate of interest demanded of him would necessarily exceed the net interest rate by the amount charged by the banker for his services.

The Element of Risk in Interest.—But, unfortunately, the element of risk is seldom wholly absent from business undertakings. The banker (or other loan agent), who is responsible to the original saver, will therefore add a further item to the interest charge in order to cover risk, on the theory that in the case of every loan that he makes there is a possibility of non-payment. Some businesses are more hazardous than others and much more liable to failure, and on this account the charge made to cover risk is sometimes small and, again, large. Owing to this fact, the gross interest rate is sometimes low and sometimes high.

When credit is extended to well-established, conservative business houses, operating in routine fields of industry, the risk of loss is slight and gross interest is low; but when loans are made to enterprisers in new, untried lines of business, such as automobile manufacture at the beginning of the century, the hazards are great, and the lender demands a high rate of gross interest. Gross interest, therefore, unlike net interest, does not show a tendency toward uniformity of rate, but varies with the degree of risk that is represented in the loan.

Explicit and Implicit Interest.—Interest is *explicit* or *implicit*, depending upon whether the owner lends his capital out or uses it himself. If he lends it to another, the income that he receives is explicit interest. If he uses it in his own business, it still returns income—this time implicit interest. The distinction is precisely the same as that which we have already drawn between explicit and implicit rent. The enterpriser, if he is to have a sound knowledge of his costs of production, must, of course, charge against his business not only rent for land personally owned and used in his enterprise, and wages for his own services, but also interest on capital of his own that is employed in the undertaking.

Interest, Rent, and Economic Inequality.—There are two differences between interest and rent that are regarded as important by those who are particularly interested in looking at the

distribution of income from the social point of view. The first is that, owing to ineradicable differences in the productivity of various pieces of land, there are great and permanent differences in the amounts received as rent by the owners of different plots of land, depending upon whether they or their forebears have been lucky or unlucky in the selection of sites.

Many persons have been made rich because, by the merest chance, they have happened to hold title to some acres on which oil or coal has been discovered, or to a city block which fortune has decreed should be on a main artery of traffic. Thus, pure luck often plays a leading rôle in the distribution of income from land. Capital, on the other hand, commands a *uniform rate* of net interest, which means that all units of savings are paid for at the same rate, except in so far as they are employed in enterprises involving different degrees of risk, and with the further exception of differences that may exist for short periods of time though they are wiped out in the long run.

The second distinction between rent and interest relates to the fact, which we have already noted, that land is virtually fixed in quantity, whereas capital is increasing rapidly in volume year by year. The student who has mastered the theory of value will see at a glance that, as the demand for land increases as a consequence of growth in population, the income from land must increase also, owing to the fixity of supply. But since capital is the result of saving, the amount of capital available (through an increase in saving) may steadily keep pace with the increase in the demand for capital, with the net interest rate remaining constant. Indeed, it is conceivable that capital accumulation might take place at so rapid a pace as to bring about a decline in the rate of net interest.

Some critics of the present economic order, while they regard the payment of interest as necessary if we are to have sufficient capital to operate our industrial machine, hold that rent on land should be appropriated by the government and used for the good of the whole people. The critics point to the distinctions between rent and interest, such as we have outlined briefly; they urge that, since land is a free gift of nature, its benefits should accrue to all the people, and not to a few only; they show that the pay-

ment of rent leads to grave inequalities of wealth—inequalities that are becoming greater year by year; and finally, they insist that rent is unearned income—an unnecessary payment—since the appropriation of rent by the state would not deprive society of the use of land. These are questions of the greatest importance, but questions which, unfortunately, we cannot undertake to discuss in the present volume.

The Social Usefulness of Interest.—Before quitting the subject of interest, we must mention two ways in which the payment of interest is said to be of benefit to society. First of all, it provides an incentive for the saving of income, and thus increases the volume of purchasing power that is needed for building transportation lines and factories, equipping mines and farms, and providing the huge quantity of capital goods that is a part of every highly organized industrial order.

We need scarcely enlarge upon the advantages that result from an abundance of mechanical aids. An understanding of the roundabout process is all that is needed to convince one that without a large accumulation of capital we could scarcely hope for high standards of living for the masses. Even those who are most outspoken in their denunciation of the private ownership of the instruments of production seldom deny the usefulness of capital goods. The payment of interest, by encouraging people to save, leads to an increase in the quantity of capital, and thus to the production of more goods and the creation of higher real incomes.

It is also claimed for interest that it directs capital into the most productive economic channels and, as a consequence, confers a great benefit upon society. The argument runs about as follows: Various industries bid against each other for the use of capital. Capital tends to flow into those industries that offer the highest rates of interest (assuming, for the moment, equal risk in all industries). The industry that can pay the highest rate is the one which at present is underequipped, and which therefore turns out so few units of product that, with a large demand for the product, the price received is high and profits are large. Thus an industry which offers a high rate of interest for the use of

capital is one which at present is unable to provide society adequately with its product.

The payment of the high interest rate not only calls attention to society's need for more goods of this particular kind, but also attracts capital to this industry and thus tends to fulfill the need. Other enterprisers, seeing the large profits to be obtained in this industry (profits which result, it should be noted, from society's need for the product), bid high prices for capital with which to enter the industry. Competition results, the good is made in larger quantities, the price goes down, and the rate of interest in this industry eventually falls. The net result, then, is that society is amply supplied with an economic good that was previously very scarce.

In a society in which incomes were approximately equal, it is probable that the interest rate would aid in bringing about the production of goods most needed before less essential goods were manufactured. But in our present economic order, the interest rate performs this directive function very imperfectly, if at all. If working-class families need cheap dwellings and rich men want million-dollar yachts, it might appear to be socially desirable to have the houses put up before the yachts are built. But yacht building is vastly more profitable than house building, and if capital were scarce the interest rate offered by yacht manufacturers for the use of capital might easily be twice as high as that offered by housing contractors. The chances are, then, that capital will be turned into the building of yachts and not of houses.

It is doubtless true that the interest rate directs capital into the most productive lines of industry, if by "productive" we mean productive of value; but the payment of interest does not insure that necessities will be made before luxuries. Indeed, it comes closer to insuring that luxuries will be made first. For the large gains that are obtainable in the luxury trades permit a high rate of interest to be paid, and thus capital is attracted from less lucrative businesses which may, nevertheless, be more essential to social welfare. Certainly, the interest rate does not guarantee that cake shall not be baked until all the people have bread. On the contrary, it may induce some bread bakers to shift to cake baking because of the greater ease of securing capital at the high interest

rates that can be paid by cake bakers, but not by the bakers of bread.

Presumably, the force of competition would eventually reduce the profits of cake bakers, so that they could no longer offer unusually high rates for capital or for other productive agents. Cake would continue to be made, however, so long as people with purchasing power offered a price sufficiently high to cover all costs of production. Of course, if incomes were approximately equal, it is probable that necessities would be purchased before luxuries were demanded. In the absence of anything approaching equality, high prices for luxuries will be paid readily by the very wealthy; and, as a consequence, there is the possibility that not only capital, but land and labor as well, will fail to be employed in lines of industry in which, from the point of view of public welfare, they are most needed.

Interest is a payment made for the use of capital.

Net interest is a payment made to induce persons to save capital.

Gross interest is net interest plus charges added to cover risk and administrative costs.

CHAPTER XXVI

THE DISTRIBUTION OF INCOME: PROFITS

PROFITS are the share of income that goes to the business enterpriser, over and above the payments which he receives for any land, capital, or labor which he personally has invested in the business. We have described the enterpriser as the person, or group of persons, that brings together land, labor, and capital, and fashions them into a going business or that directs the operation of a business once it has been started. The enterpriser, occupying a position of leadership, takes upon himself the responsibility of paying rent, wages, and interest to the other productive agents, and receives profits by reason of his ownership of the business. But often, as we shall see, he invests his own land, labor, and capital in his business, and he receives payment, also, for these factors of production.

GROSS PROFITS AND NET PROFITS

It is a rather common practice among business men to deduct total expenditures of all kinds from total receipts, and to call the balance "profits." Profits of this kind are called *gross profits* by the economist. *Net profits* are arrived at by making the further deductions of implicit rent, implicit interest, and wages of management. Only by charging all of these items against costs of production can the enterpriser get an accurate notion of the expenses incurred in transacting his business. And not until he has made these deductions does he enjoy profits, in the sense in which the economist ordinarily uses the term; for it is upon net profits, or "pure profits," that the economist lays particular stress.

Wages in Gross Profits.—In an earlier chapter we mentioned the fact that business enterprise is labor of a special sort, and that

the income paid to enterprisers for their labor is called wages of management. It is entirely proper, then, to classify as wages that part of the enterpriser's gross profits that results from employing his own time and energy in his business. This is, indeed, a necessary expense that must be met if the enterprise is to continue to operate. A reasonable test of productivity is the ability of the enterpriser to secure employment with another business concern. Whatever he can obtain for his services elsewhere is surely not too much to charge against his own business as wages of management.

Wages of Management and Marginal Productivity.—Since managerial ability, as expended in production, is simply a form of labor, the wages of management, like other wages, are determined by the conditions of supply and demand, and tend to equal the marginal productivity of the particular type of human effort that happens to be under consideration. Without again rehearsing the principle of marginal productivity as it applies to wage determination, we may say that the marginal productivity of business ability of a given kind can be measured by ascertaining the difference between the total product of economic society when a single unit of a given type of business ability has been withdrawn from the productive process, and the total product when this unit is employed. The value of this marginal product measures the maximum wage that will be paid for the unit, and competition for managerial labor of this kind will tend to keep the wage up to this amount.

Equalization of Managerial Wages.—Marginal productivity measures, moreover, the wages of management received by those who are in business for themselves; for there will be little temptation for a man to operate his own enterprise if it pays him a smaller wage than his services would command in the open market. Moreover, if wages of management paid by enterprisers to themselves should be much higher than the current wage paid to managers of the same grade who are employed by others, the costs of production of the former will be so high as to make it difficult to compete with others in the sale of their product. Hence, we may assume an equalization of the wages of equally competent managers, as of other types of workers, throughout

industry in a given market. And, as we have said, the wages of management, like ordinary wages, though equal to the marginal productivity of the particular type of ability that may be under consideration, are actually determined by the general conditions of supply and demand.

Rent and Interest in Gross Profits.—We have already argued that the enterpriser, if he would keep the records clear, must include in his costs of production the items of rent for land personally owned and used in his business, and interest on capital of his own that he has invested in his enterprise. In each case the amount to be charged can be determined on the basis of competitive prices for land of this particular quality, and for capital employed in businesses of the type that he is conducting. It will be apparent, then, that the payments due the enterpriser for his personal investment of land, labor, and capital, may easily be included in costs of production under the heading of rent, wages, and interest. Indeed, it seems much more logical to classify these payments in this way than to include them with profits.

The Residual Character of Net Profits.—Having disposed of wages of management, implicit rent, and implicit interest, in the way that has been outlined, we have also disposed of the greater part of gross profits. Indeed, it may appear that there will be nothing left; for we have stated repeatedly, in the past three chapters, that each factor of production tends to get as its share in distribution the full value of its marginal contribution to production; and we have said, further, that the price of a commodity is the sum of the prices that must be paid for the use of the several productive agents that are employed in its making.

Nevertheless, there is often something left over after payments have been made for land, labor, and capital; and since there is no one else in a position to claim this residual or surplus product, it is taken by the enterpriser, who, as custodian of the treasury, is in a peculiarly favorable position to hold fast to whatever may remain after the productive agents have been paid off. It is this residual product that the economist has in mind when he speaks of net profits, or pure profits. We shall now examine briefly the circumstances in economic life that give rise to net profits.

CAUSES OF NET PROFITS

Our analysis excludes from net profits all payments to which the enterpriser is entitled by reason of the investment of land and capital, and for personal services rendered in the operation of his business. There remain, therefore, only the rewards that may chance to come to him through the *ownership of the business*, which is not the same thing as the ownership of all, or part, of the land or capital used in the enterprise.

Profits as a Payment for Risk-Bearing

The enterpriser, as owner of the business, secures land, labor, and capital at stipulated rates. He believes that he can employ these agents of production in such fashion as to produce goods that will sell for a larger amount than his total costs for rent, wages of all kinds, and interest. But whether he succeeds or not, he is not relieved of his responsibility to meet these definite obligations. If he is fortunate, and succeeds in getting more for his product than it has cost him to produce, he reaps a profit. But if he is unlucky, and his expenditures are greater than his receipts, he is still under the necessity of making the promised payments, and thus suffers losses or, as they are sometimes called, "negative profits."

If, then, as we have already suggested, the enterpriser is in a strategic position to claim for himself the residual product of his business, he is also so situated that he cannot avoid shouldering the losses, if losses there be. On this account, the enterpriser is very often described as the risk-bearer of economic life; and the income that is his in the form of net profits, when the business turns out well, is said to be the reward for the bearing of risk. Unpredictable occurrences, which mean risk for enterprisers, are unquestionably one of the causes of net profits.

To this cause should be added the absence of perfect competition, which may give rise to profits, positive or negative; and also predatory activities in which enterprisers have been known to engage, and through which they have made gains at the expense

of others. We shall now look a little further into these sources of profits.

Insurable and Non-Insurable Risks.—In our chapter on the handling of business risks, we noted that while it is possible to insure against many of the hazards of business life, yet there are numerous risks which cannot be eliminated or shifted through the medium of insurance. When business risks can be and are insured against, the insurance premiums become definite costs of production, and thus enter into price. The many uncertainties connected with the operation of modern business, which are not capable of being reduced to statistics and treated on an actuarial basis, must, nevertheless, be taken care of by some one. Risk-bearing of this kind is the special function of the business enterpriser.

General Prices and Profits.—Because goods are produced in advance of demand, the enterpriser runs the risk of getting less for his product than it has cost him to manufacture, owing to a decline in the price level. On the other hand, if luck is with him, and the price level rises steadily, the enterpriser may reap a substantial profit.

Let us suppose that a business man begins today to produce goods for sale six months hence. If the general price level is low, he buys raw materials at moderate prices, and contracts with labor to work at wages that are low because general prices are low. But if, by the time the goods are ready for delivery, the price level has risen appreciably, say, 10 per cent, the goods, though manufactured at low cost on the basis of the old price level, will be sold at high prices on the basis of the new price level. He may gain, further, by borrowing funds when prices are low, and repaying when they are high.

It is clear, then, that, because commodities are produced in anticipation of demand, business men reap profits in times of rising prices; and on this account, enterprisers are always optimistic when prices are on the upward grade. The reverse is true, of course, when prices are declining, since goods made of materials and labor bought at high prices must later be sold on the basis of the new price level, which may mean selling at less than costs of production. Business men lose, moreover, if they are

compelled to repay, when prices are low, loans that were made when prices were high. Fluctuating price levels, therefore, give rise to net profits, positive or negative.

Individual Prices and Profits.—Even if there were no change in the price level, there would still be risk involved in providing goods for sale at a future time. For, as we emphasized in our study of price determination in the moderately long run, it is impossible to predict in advance just how great the demand for a given product will be; and, even though conditions of demand were fully known, there is no coordination between producers, and as a consequence the market may be flooded with a given commodity, or the good may be available only in very limited quantities.

If, because of larger demand or smaller supply than was anticipated, enterprisers are able to sell their goods at a price well above costs of production, they take their reward in the form of a substantial profit. But if, as is not infrequently the case, the demand is so small that it will not absorb the total quantity of the good available at a price covering costs of production, the price will of necessity be reduced and producers will have to take a loss. In the absence of any centralized control over production, and with very inadequate knowledge of probable demand, production in advance of demand is a very venturesome undertaking.

Profits and Losses in Agriculture.—It is particularly so in agricultural pursuits in which an enterpriser's crop may be destroyed by drought, flood, hail, or frost; or, equally bad from his point of view, may be rendered virtually valueless because of a "bumper crop" throughout the country. An individual producer's peach crop may be ruined by frost, or his tobacco crop destroyed by hail. A huge yield of cotton may drive the price down until it is well below costs of production; or, again, as has happened more than once, an oversupply of apples may result in the fruit being left on the trees to rot, because the costs of picking, packing, and transporting are greater than the price obtainable. Sometimes, of course, the shoe is on the other foot: For example, a crop failure in several great wheat-growing areas

may so limit world production as to bring a large profit to the fortunate persons whose crops are not affected.

Thus is the enterpriser in the field of agriculture called upon to bear risks. He begins his operations far in advance of the time when the product will be sold, and, as a consequence, his economic fate, until the crops are harvested and sold, is in the lap of the gods. For, unlike the manufacturer and merchant, he is at the mercy not only of economic forces, but of natural forces as well.

Profits Due to War Conditions.—The possession of a large quantity of a given good, or of the equipment needed for its fabrication, may easily give rise to enormous profits, if there happens to be an unexpected demand for the good or a limitation of output on the part of some producers. The World War brought an unprecedented demand for essential goods such as steel. As a consequence of this increased demand, stockholders in steel companies throughout the United States drew large dividends, which represented the profits to which they were entitled as owners of these companies, and therefore risk-bearers.

The war also brought fortunes to a number of American dealers in German dyes, who, because the supply from Europe was suddenly cut off, were able to sell the stock on hand at fabulous prices. This, of course, occurred before the United States had developed a dye industry of its own.

Degrees of Hazard in Business.—Some lines of business are much more risky than others. Whenever the operation of a business involves the expenditure of large amounts before it can be known whether the commodity will be favorably received, there are chances of large profits and also of large losses.

An outstanding example of such profits and losses is to be found in theatrical production. Daniel Frohman, who has long been a leading producer in the American theater, is authority for the statement that the hazards involved in this field of enterprise are so great that theatrical production may well be called a gamble. It is almost impossible to predict in advance whether or not a play will achieve popularity. If it does, it may make millions for its sponsor; if it does not, it leaves him out of pocket perhaps

some twenty or thirty thousands in the case of a small dramatic production, or several hundreds of thousands if he has gone in for musical comedy or revue.

A somewhat similar situation exists in the clothing industry and other businesses in which fashion plays a prominent part, with manufacturers trying to induce the public to adopt novelties, and the public now accepting and again rejecting the proposed innovations. A happy guess as to what people will buy may lead to large profits, but there is always the possibility of guessing wrong and having to take losses instead. However, it is the particular function of enterprisers to assume risks; and though the business hazards just cited are rather unusual, they differ from the risks of the average business man in degree rather than in kind. Some enterprisers are willing to stick to well-established industries in which there is small likelihood of loss, but also small chance for large profits. Others of more venturesome nature sally forth into unexplored fields of industry, lured on by the possibility of unusual profits, and willing to take the chance of losing very considerable sums.

Stockholders as Enterprisers.—Since we have narrowed our concept of profits so as to include only the return that results from ownership of business, we must place in the class of enterprisers (as entitled to profits, and to losses as well) all persons who have their capital so invested that they, being owners of the capital and of a business, are risk-bearers. Stockholders, of course, meet these requirements; and stockholders must, therefore, be regarded as enterprisers, in the sense that they are entitled to a return for risk-bearing.

The buyer of shares of common stock casts his lot with that of other stockholders, and agrees to accept as a reward a share in the profits of the business. If the business prospers, his dividends are large, and he receives a return higher than that which would be paid him if he lent his money outright to the concern, taking a promissory note in place of ownership. If the business is unsuccessful, the stockholder gets small dividends or none at all. He is, then, sharing in the risk of ownership of the business; and by virtue of his ownership, he receives positive profits when the

business does well and negative profits (or losses) when it is conducted at a loss.

Profits Due to Imperfect Competition

We have discussed the possibility of profits arising from the uncertainties that appear to be inherent in business undertakings. We have dealt particularly with profits that are closely related to the production of goods in anticipation of demand. Changes in general prices, unforeseen conditions of supply and demand, and forces beyond the control of the enterpriser, such as freakish weather or an important war, have been mentioned as causes contributing to positive or negative profits. We shall note now some gains which are independent of such causes, being the result of interference, intentional or unintentional, with competition.

Discrepancies Between Costs and Selling Price.—Let us return to our contention that, under perfect competition, there is a tendency for the prices paid for the productive agents (that is, the total costs of production) to equal the selling price of the commodity in the making of which they have been used. This contention is sound enough, granted the condition that has been assumed, namely, that of perfect competition. But, as we have already admitted, absolutely perfect competition is a state that is yet to be attained. This fact does not detract greatly from the significance of our generalizations; but it does prevent our claiming exactness of results in the working out of economic theories.

When, therefore, we say that the enterpriser pays to the owner of a productive agent the full value of the marginal product, we refer to what would happen under ideal conditions. Since competition is not perfect, the amount paid for the use of a factor of production is only approximately the value of the marginal product. Herein lies an opportunity for a profit for the business man; for, although the landowners, wage earners, and capitalists may be trusted to seek their own self-interest, it is probable that the enterpriser is ordinarily more favorably situated than they for effective bargaining. Indeed, his very existence as a business

man is dependent upon his knowing the game, and playing it to his own advantage.

The Enterpriser's Bargaining Position.—The instability of conditions in the business world makes it virtually impossible for the owners of productive agents to know the exact value of the marginal product of these agents. Ordinarily, they know simply that enterprisers are paying this price or that for a factor of production. They may assume, and fervently hope, that competition will force enterprisers to offer the full value of the marginal product for the use of productive agents. But the enterprisers themselves may not know precisely the amount that is added to total product by use of the marginal unit of land, labor, or capital; and, consequently, the rate offered for an agent throughout a given industrial market may be slightly less, or even slightly more, than the exact value of the marginal product.

Naturally, enterprisers will try to see to it that any error that may be made is on the side of underpayment rather than overpayment; the point is that they feel the necessity of being on the safe side of the proposition in bidding for the use of land, labor, and capital. Finally, even though the enterpriser *should* know the exact value of a marginal product, the customary absence of perfect competition would probably prevent the price paid for an agent from being bid up to an amount equal to this value. All in all, then, in the field of actual business practice, there is room for a margin of profit; there is also the chance of loss, but loss is less likely than profit because of the strategic bargaining position of the enterpriser.

The Time Element in the Limitation of Competition.—Imperfect competition in the purchase and sale of productive agents is attributable in part to the fact that enterprisers often make relatively long-time contracts for land, labor, and capital. Once the contracts are made, they must be lived up to, despite the fact that other enterprisers, a few days or weeks later, may, in a changed market, make other contracts that are either more or less favorable than the first. Consequently, competing concerns will be operating at the same time with productive agents of equal grades, but agents for which different amounts are being paid in rent, wages, and interest.

Land that was leased many years ago for a long period may cost the enterpriser substantially less, or more, than similar land leased this year by another business man. Wage contracts entered into today covering (say) a two-year period may be more or less advantageous than a contract signed six months or a year ago. Interest rates change from time to time, and yet, once agreed upon, run over a period of months or years; and thus competing enterprisers have different costs for this productive agent. If the price obtained for the finished good covers all costs of those enterprisers who have high rent, wages, and interest to pay, the more fortunate enterprisers with their lower costs will enjoy temporarily a margin of profit. If, on the other hand, the selling price of the good is low, the firms that have contracted for productive agents at an unfavorable time will be compelled, for the present, to take losses.

The point here made is somewhat different from that which was emphasized in connection with changing price levels. Business men *as a class* make profits in periods of rising prices and take losses when general prices decline. But owing to the time element involved in contracts relating to productive factors, one enterpriser in a given line of industry may be reaping profits, while another, who has contracted for productive agents at a different time or for a shorter or longer period, is taking losses.

The time element, therefore, results in imperfect competition among enterprisers in their bidding for agents of production. For we cannot claim free mobility for land, labor, or capital which is withheld from the market by reason of contracts extending into the future; and without free mobility there cannot be free competition. Moreover, even if there were no contractual obstructions to mobility of the agents, the absence of full knowledge of market conditions on the part of all concerned would prevent perfect competition from being realized, and would thus lead to profits for some enterprisers.

Monopoly Profits.—In our study of price determination, we noted the fact that monopoly price has no necessary relationship to costs of production. Though the monopolist may decide that he will obtain the greatest possible net return by selling large quantities of his product at little more than cost of production

per unit, it is equally possible that he may restrict his product, selling only to those high up on the demand schedule, and thus taking a large monopoly profit per unit of product. In either case, monopoly power, complete or partial, is one of the causes of profits, and one of increasing importance in these days of tremendous mergers.

Tariffs and Profits.—The erection of protective tariff barriers brings another interference with competition, and is therefore an aid to the realization of profits. The purpose of a protective tariff is to shut out foreign competition, and thus leave the production of a given commodity in the hands of domestic enterprisers. These domestic enterprisers, of course, may carry on active competition among themselves; but it is possible that they will instead come to an agreement, divide up the field, and depend upon a friendly tariff to insure profits.

If, for example, it costs the least efficient American producers one and three-fourths cents a pound more than Cuban enterprisers to produce sugar, it might be good business for American sugar growers to unite in demanding a two-cent protective tariff. Such a tariff, once attained, would insure at least a temporary profit to all American sugar growers, inefficient as well as efficient. The profit might be wiped out finally by an increase in production in this country, if the increase were of sufficient size to make it unnecessary to rely upon imports of sugar. But in any event, this profit would probably be enjoyed for a very long time, because so large a part of our sugar supply is provided by Cuban producers. Under the tariff conditions suggested above, the major portion of this commodity would continue for a time at least to come from Cuba, and necessarily (because of the tariff) would sell at a high price. The situation would be comparable to that of partial monopoly, treated in an earlier chapter. And the net result would be a profit for American producers of sugar.

Profits from Predatory Activities

Though honesty is doubtless the best policy in business, if one wishes to carry on operations indefinitely, it can scarcely be de-

nied that some business men have made, and others are now making, large profits by engaging in predatory activities.

It is sometimes held that an enterpriser can win success only through fair dealing with his customers, and this is doubtless true "in the long run." The swindler in business life usually comes to grief in the end; but in the mean time he may reap a handsome profit, and, by professing conversion and reformation, he may even retain his place in the good graces of the public. Toward the end of the nineteenth century, the evil practices of those in control of some of our great industrial trusts attracted wide attention and brought upon the culprits severe and deserved denunciation. But most of the gentlemen who were involved were able later to renovate their reputations, and their misdeeds are apparently forgiven, and perhaps largely forgotten.

Nevertheless, we have today such legislation as pure food laws to prevent adulteration, organizations such as "better business bureaus" and movements such as "truth in advertising" campaigns to combat misrepresentation, and such bodies as the Federal Trade Commission to police some of the main arteries of business. The existence of agencies of these kinds, designed to whip into line those who seek to gain unfairly at the expense of the public, is in itself sufficient evidence that it is possible for business men, if unhindered, to make profits through engaging in predatory practices.¹

SOME CONCLUDING OBSERVATIONS

The Temporary Nature of Profits.—Our examination of the causes leading to net profits has indicated the unstable nature of this share in distribution, as compared with the greater stability of rent, wages, and interest. Profits are often brought about by conditions that are wholly beyond the control of the enterpriser. For some reason or other, the selling price of a commodity is higher than the costs of production, and enterprisers reap a

¹ Those who care to learn of specific cases of fraud in modern business life will find some interesting examples in *Your Money's Worth*, by Stuart Chase and F. J. Schlink.

profit; or, on the contrary, the price happens to be lower than costs and enterprisers are obliged to take a loss.

But these discrepancies between costs and selling price, though they may never be wholly eradicated, are always in process of being wiped out. In our study of price determination in the moderately long run, we noted the effect, upon future production, of a condition of market supply and demand that resulted in profit or loss, as the case might be. We may repeat, at this point, the simple statement that when the industry as a whole enjoys profits, these profits attract the attention of business men seeking opportunities, a larger quantity of the good is produced, price is beaten down, and positive profits tend to disappear. When, on the other hand, losses must be taken, some enterprisers drop out of the contest, a smaller quantity of the commodity is placed upon the market, and prices tend to rise sufficiently to cover costs of production. It would appear, then, that profits, both positive and negative, are a temporary phenomenon, here today, gone tomorrow, and possibly back again next week.

Average Profits and Individual Profits.—In the long run, therefore, we expect to find that the profits of an industry just about balance the losses of that industry. But a close examination of the situation reveals the fact that, while this is probably true for the industry as a whole, there are within the industry individual enterprisers who have profits more often than losses, and others who lose so consistently that they are forced out of business; the latter, however, are promptly replaced by other enterprisers eager to demonstrate their ability to achieve business success. Thus we have, in every line of competitive business, over a long period of time, a continual weeding-out process. Of course, there is always the chance of being one of the winners; and the spirit of the optimist, and perhaps something of the spirit of the gambler that lures the public into the stock market, leads the individual into the arena of business enterprise where, though many go down in the fray, there is always a chance of making good and achieving economic success.

Profits and Unrecognized Managerial Ability.—Positive net profits, it may be said once more, do not arise from the superior managerial ability of the enterpriser, except in so far as he is

able to conduct a business in such manner as to yield a greater product, as a manager, than he could secure in the form of wages of management if he were to hire himself out to another enterpriser.

He might, for example, as a manager contribute to his own business \$25,000 worth of product and yet be classified by outsiders as a \$20,000 man, and be able to command no more if he worked for another. In such event, the \$5,000 extra that he realizes through conducting his own business is a payment dependent upon the ownership of the business, and is therefore net profits. As owner he is residual claimant, and is able to collect the full marginal product of his managerial ability, part of which would have been lost for him were he not in business for himself.

There is the further possibility that the greater freedom of action enjoyed by the able manager who runs his own business may result in gains that could not be realized if he were an employee of another enterpriser. If in business for himself, he might, for example, pursue an enlightened labor policy which would win the loyal and enthusiastic support of his workers, and result in low unit costs of production. But when he served as a hired manager, this labor policy might be vetoed or hampered, and the good will and cooperation of the employees be lost as a consequence. His contribution as manager would, of course, be greater in the former than in the latter instance. The difference, since it would not be collectible in wages of management, would be net profits. All gains, therefore, that are attributable to unusual managerial ability which brings to the manager no additional income unless he is engaged in business on his own account, must come under this same heading.

Profits are a payment for the assumption of the ownership of business.

Gross profits are the difference between the total receipts and total expenditures of a business.

Net profits are gross profits less deductions for the use of land, labor, or capital that the enterpriser may have invested in the business.

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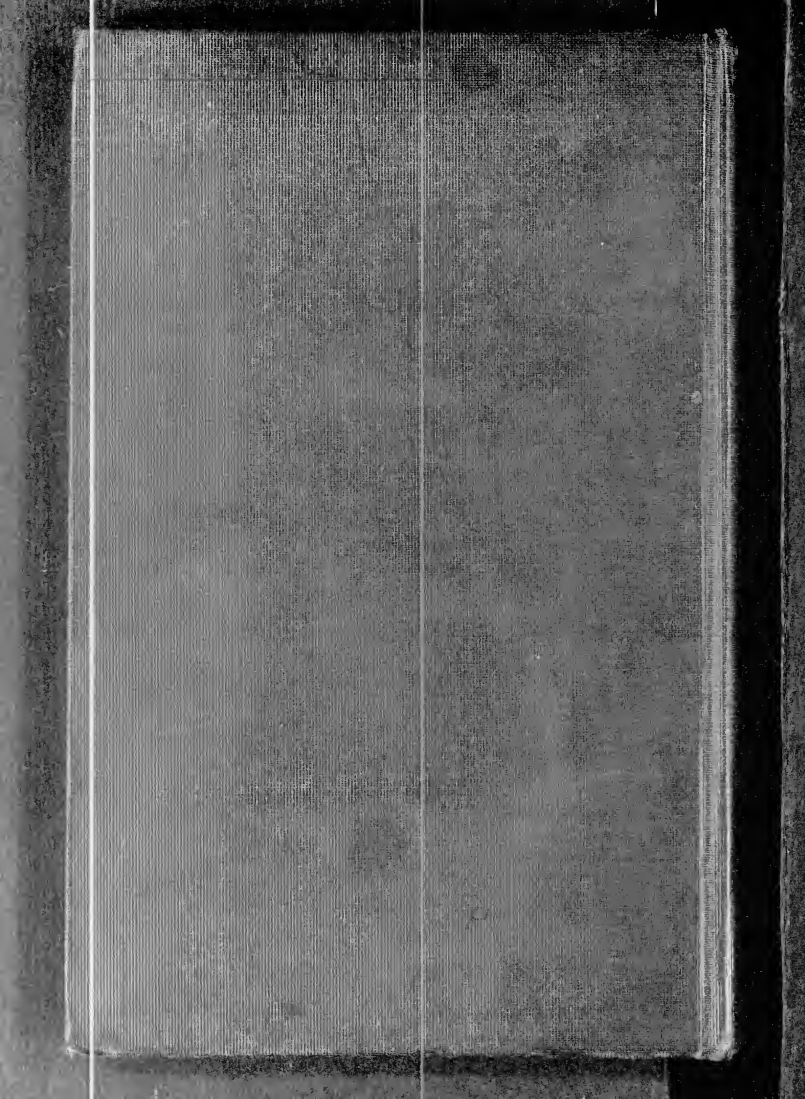


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